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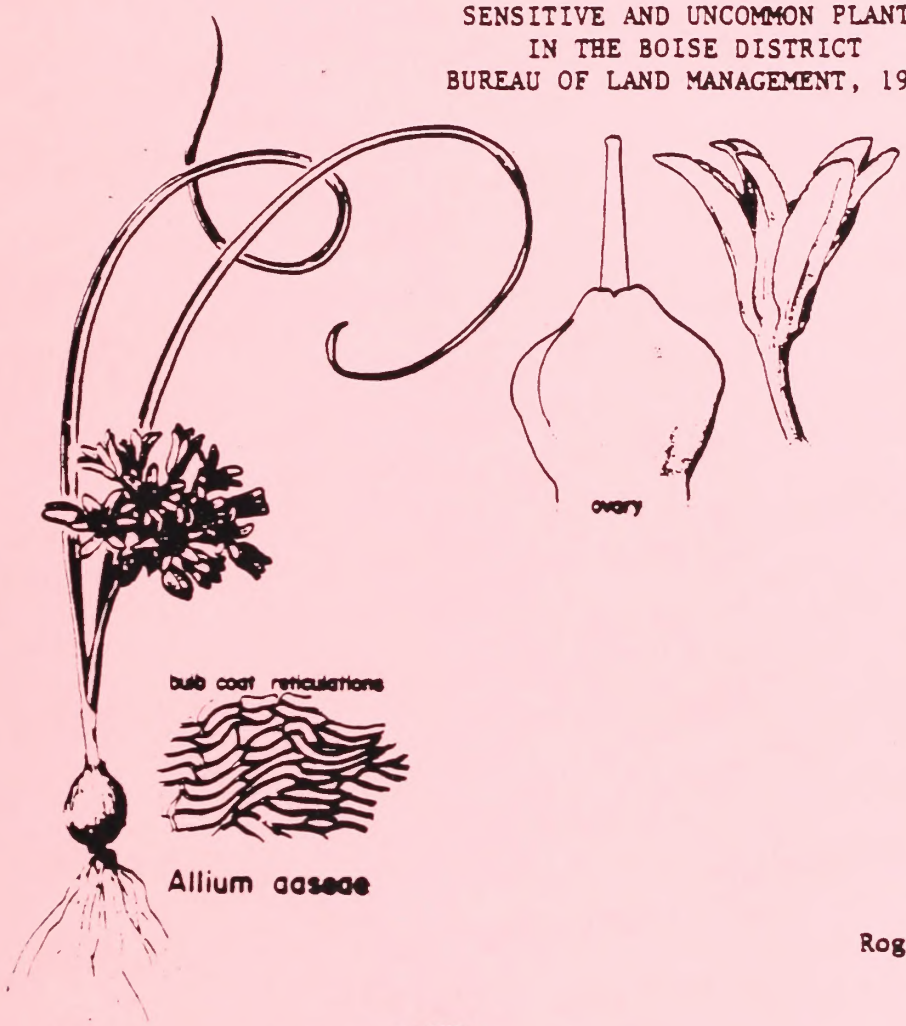
TECHNICAL BULLETIN

SENSITIVE AND UNCOMMON PLANTS
IN THE BOISE DISTRICT
BUREAU OF LAND MANAGEMENT, 1986



by

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INTRODUCTION

This study was undertaken to collect basic information and exact locations of sensitive and uncommon plants on public lands in the Boise District of the Bureau of Land Management (BLM). This information will be used in preparation of a Resource Management Plan (RMP) for the Cascade Resource Area.

Endangered is defined in Sec 3(4) of the Endangered Species Act of 1973 as "any species which is in danger of extinction throughout all or a significant portion of its range...". Threatened is defined in Sec 3(15) as any species which is likely to become an endangered species within the forseeable future throughout all or a significant portion of its range. Most species of concern in this study are listed on the Federal Register on June 1, 1976, or the Provisional List of Rare, Threatened and Endangered Plants in Oregon. Also considered were those plants thought to be threatened, endangered or uncommon by The Rare and Endangered Plant's Technical Committee, Idaho Natural Areas Council. Sensitive species are all species either on the Federal list or on the State Watch list which are protected and of special concern by the BLM. It is Bureau policy to give equal treatment to plants on either the local State Sensitive lists or the Federal lists.

This 1986 report, Sensitive and Uncommon Plants Inventory Report for the Boise District Bureau of Land Management, compliments all earlier Endangered and Threatened plant reports.

A. Dr. Pat Packard, professor of Biology, College of Idaho, Caldwell, Idaho. Dr. Packard verified all my field collections and supplied comparison material when possible. The Herbarium at the College of Idaho has specimens on file of most species considered in this report, including various different locations.

B. Bob Steele, Research Forester, U.S. Forest Service, Intermountain Forest and Range Experimental Station, 316 E. Myrtle St., Boise, Idaho. Bob Steele's files of collection data and the experimental station's herbarium were consulted. The experimental station's herbarium also has specimens of most species considered in this report.

C. The New York Botanical Gardens Herbarium also has specimens of most species considered in this report. Particularly helpful was Dr. Rupert Barneby's identification and comments on Astragalus species.

D. Dr. Douglass M. Henderson - Department of Biological Sciences, University of Idaho, Moscow, Idaho has specimens of most species considered in this report.

E. Klaus Lackschewitz, Department of Botany, University of Montana, Missoula, MT.

F. Dr. Sherman Preece, curator of the University of Montana's Botany Department Herbarium, and chairman of the Department of Botany.

G. Also consulted was the BLM Boise District Herbarium in Boise, Idaho. Specimens collected in the 1979-85 season are on record at the district herbarium.

H. Idaho Natural Heritage Data Bank, 4696 Overland Rd., Boise, ID 83705, (208)334-3402.

LISTS OF SENSITIVE AND UNCOMMON PLANTS
(WITH AUTHORS LISTED) IN S.W. IDAHO

Legend

1. Allium aaseae Ownbey
2. Artemisia packardiae Grimes & Ertter
3. Artemisia papposa Blake & Cronq.
4. Astragalus atratus Wats. var. owyheensis (Nels. & Macbr.) M.E. Jones
5. Astragalus calycosus Torr.
6. Astragalus camptopus Barneby
7. Astragalus iodanthus Wats. var. vipereus Barneby
8. Astragalus mulfordiae M.E. Jones
9. Astragalus nudisiliquus Nels.
10. Astragalus purshii Doug. var. ophiogenes Barneby
11. Astragalus sterilis Barneby
12. Astragalus vallaris Jones
13. Astragalus yoder-williamsii Barneby
14. Camassia cusickii Wats.
15. Carex aboriginum M.E. Jones
16. Chaenactis cusickii Gray
17. Cryptantha propria (A. Nels. & Macbr.) Payson
18. Cymopterus acaulis (Pursh.) Raf. var. greenleyorum Grimes & Packard
19. Cymopterus corrugatus
20. Dimeresia howellii Gray
21. Draba douglasii Gray
22. Eatonella nivea (D.C. Eat.) Gray
23. Enceliopsis nudicalius (Gray) A. Nels.
24. Eremocarpus setigerus (Hook.) Benth
25. Erigeron disparipilus Cronq.
26. Erigeron latus (Nels. & Macbr.) Cronq.
27. Eriogonum ochrocephalum Wats. sceptrum Reveal
28. Eriogonum salicornoides Gandg.
29. Eriogonum shockleyi Wats. [(shockleyi) Reveal] in edit
30. Eriogonum thymoides Benth.
31. Glossopetalon nevadense Gray
32. Gymnosteris parvula Heller
33. Gymnosteris nudicalius Gooding
34. Glyptopleura marginata D.C. Eat.
35. Haplopappus radiatus (Nutt.) Cronq.
36. Hackelia ophiobia Carr
37. Ivesia baileyi Wats.
38. Langloisia puncata Gooding
39. Lepidium davisii Rollins
40. Leptodactylon glabrum Patterson & Yoder-Williams Syst. Bot. 1984
41. Lomatium hendersonii Coult. & Rose
42. Lupinus brevicalius Wats. (color variety) Barneby
43. Lupinus lyallii Gray subsp. washoensis Dougl.
44. Lupinus uncialis Wats.
45. Machaerocarpus californicus (Torr.) Small (small form)
46. Malacothrix glabrata Gray
47. Malacothrix torreyi Gray

48. Mentzelia mollis Peck
49. Mentzelia torreyi Gray
50. Nemacladus rigidus Curran.
53. Pediocactus simpsonii (Engelm.) Britt. & Rose var. robustior Coult.
54. Penstemon perpulcher A. Nels.
55. Periphyllum ramosissium Nutt.
56. Petrophytum caespitosum (Nutt.) Rydb.
57. Phacelia lutea (H. & A.) J.T. Howell var. clava Cronq.
58. Phacelia minutissima Henderson
59. Pinus flexilis James
60. Primula cusickiana Gray
61. Ranunculus andersonii Gray
62. Rhysopterus plurijugas Coult. & Rose
63. Stipa webberi (Thurber) B.L. Johnson
64. Stylocline filaginea Gray
65. Texosporium sancti-jacobi (Tuck.) Nadv.
66. Trifolium owyheensis Gilkey

I. SENSITIVE PLANTS

II. UNCOMMON PLANTS

a. Plants present in the Owyhee Resource Area.

b. Plants present in the Bruneau Resource Area.

TABLE OF COMMON NAMES

TABLE OF COMMON NAMES (con't.)

Explanation of Information on Individual Species

I. Latin name and common name

II. Family:

III. Status:

IV. Known Locations:

V. Soil Type:

VI. Habitat and Ecology:

VII. Remarks:

VIII. Hazards:

IX. Management Recommendations:

I. *Allium aaseae* (Aase's Onion)

II. Family: Liliaceae

III. Status: Federal Category I recommended for threatened status

IV. Known Locations:

Idaho: Gem County:

a. T. 6 N., R. 1 W., Sec. 1, 2, 3, 10, 11, 12 Sand Hollow

b. T. 5 N., R. 1 E., Sec. 22

c. T. 4 N., R. 2 E., Sec. 7, Seaman Gulch

d. T. 6 N., R. 1 W., Sec. 21, 22, 23 Pearl Mining Claims

e. Numerous sites are known from private property but none are protected.

V. Soil Type: Lolilita coarse loamy sand.

VI. Habitat and Ecology: Allium aaseae is a small perennial onion growing in bare soil with a sandy gravel surface soil in a *Purshia* -- *Eriogonum* association within the sagebrush -- grassland zone. Between 2850' and 4400' elevation. Usually found on or near ridgetops with 60-75%+ slopes which receive a lot of sunshine. It can also be found on South, East, and West facing slopes which receive abundant and early morning sun. It is a narrow endemic confined to the area NW of Boise, Idaho. It is a narrowly edaphic plant requiring a specific substrate and texture. It is edaphic to course silica sand. It's seeds requiring a cold wet stratification and cold germination in the dark.

VII. Remarks: This onion is very frost resistant and can be found sprouted in February. It is a unique species ecologically and physiologically. It is apparently on the decline for several reasons. It's known home range is experiencing an invasion by Medusa head ryegrass, cheatgrass, skeleton weed, ORV traffic, and urbanization. It's frost hardiness may be an important feature in the future for genetic engineering with the cultivated onion. The Treasure Valley is known as an excellent seed producing area for cultivated onions. Also grasshopper spraying could adversely affect its polinators and the resultant seed production of this unique onion. There is currently some interest in hybridizing this onion with the commercial varieties. This onion occurs in several locations on private land.

VIII. Hazards: Dirt bikes traveling on and over ridgetops with steep slopes damage A. aasae by displacing its loose, sandy substrate. Late season use by snowmobiles also damages some onion sites on the Boise foothills. Mining of sand at the Unimin Mine site, urbanization, and the recent competition with invasion by annual weedy grasses destroys the onion's habitat.

IX. Management Recommendations: Allium aaseae on public lands needs monitoring, surveying for more locations, and protection from hazards. Sites on public land should be given full protection.

I. *Artemisia packardiae* Grimes and Eritter (Packard's sagebrush)

II. Family: Compositae

III. Status: Idaho's State Sensitive list

IV. Known Locations:

Idaho: Owyhee County:

T. 30 S., R. 41 E., Sec. 21

T. 28 S., R. 41 E., Sec. 14

T. 15 S., R. 4 W., Sec. 15

T. 15 S., R. 4 W., near Junction of Red Canyon

On 2 side drainages of the South Fork of the Owyhee River

Little Jacks Creek RNA

The whole East Fork of the Owyhee River

Cottonwood Creek of Big Jack's drainage

T. 10 S,. R. 3 E., Sec. 27

Deep Creek off the Owyhee River

Oregon: Malheur County:

T. 28 S., R. 41 E., Sec. 14

Leslie Gulch, Grimes & Eritter

T. 34 S., R. 46 E., Sec. 35, RR #220

R. 2 N., R. 46 E.

Nevada: Humboldt County:

North Fork of the Humboldt River

Elko County:

Upper headwaters of the South Fork of the Owyhee River

V. Soil Type: Volcanic rhyolitic cliffs.

VI. Habitat and Ecology: *Artemisia packardiae* grows in vertical rhyolitic cliffs along the Owyhee River. It is found on the side of cliffs which makes collecting and noticing it difficult.

VII. Remarks: This plant is restricted to the Owyhee and Humboldt drainages but more work will be needed before its biology is properly understood. It appears to be a narrow endemic. The proper taxonomic position of this taxon may be a variety of *A. michauxiana* Bess. The Bruneau River contains a taxon which is similar but its taxonomic position is unclear. Also, portions of the Main Snake River upstream from Twin Falls, Idaho, contain a related taxon. It needs further collecting and taxonomic attention.

VIII. Hazards: Dam developments.

IX. Management Recommendations: Protect the known locations in the Owyhee Resource Area. Also more work on the other forks of the Owyhee River should be undertaken to establish the range of this taxon. More collections from the Bruneau River should also be made. Collections of the plant in flower are needed for taxonomic studies. Most of the above collections are of plants without flowers.

I. *Artemisia papposa* (Owyhee sagebrush)

II. Family: Compositae

III. Status: Uncommon on Idaho's sensitive list.

IV. Known Locations:

Idaho: Owyhee County:

a. T. 10 S., R. 4 W., Sec. 1 SW 1/4 NW 1/4
b. T. 8 S., R. 6 W., Sec. 34
c. T. 9 S., R. 2 W., Sec. 16
d. T. 10 S., R. 4 W., Sec. 10
e. T. 10 S., R. 4 W., - over several sections on the Pleasant Valley Table
f. T. 8 S., R. 4 W., Sec. 16 NE 1/4 NE 1/4
g. Above Nip and Tuck Creek
h. Mudflat Area
i. T. 12 S., R. 3 E., Sec. 20 E 1/2
j. T. 14 S., R. 5 E., Sec. 8 SE 1/4
k. T. 12 S., R. 2 W., Sec. 35 & 28
l. T. 13 S., R. 4 E., Sec. 18 NW of NE
m. T. 13 S., R. 1 W., Sec. 25 NW of NE
n. T. 14 S., R. 4 E., Sec. 28 NE 1/4
o. T. 14 S., R. 2 E., Sec. 30 SW
p. T. 14 S., R. 1 E., Sec. 24
q. T. 10 S., R. 2 E., Sec. 19
r. T. 10 S., R. 4 W., Sec. 1
s. T. 15 S., R. 1 W., Sec. 6
t. T. 13 S., R. 6 W., Sec. 13
u. T. 12 S., R. 4 E., Sec. 29
v. T. 11 S., R. 2 W., Sec. 2
w. T. 10 S., R. 1 W., Sec. 15

Camas County:

a. T. 3 S., R. 17 E.
b. T. 2 S., R. 17 E., Sec. 3

Gooding County:

a. T. 3 S., R. 14 E., Sec. 23 & 11

b. T. 3 S., R. 12 E., Sec. 24 & 16

c. T. 3 S., R. 51 E., Sec. 17

Blaine County:

a. T. 1 N., R. 21E., Sec. 2, 33, 35, 28, 29

Elmore County:

Bennett Mt. - Camas Creek T. 2 S., R. 17 E., Sec. 3

Lincoln County: T. 3 S., R. 16 E., Sec. 16

Oregon: Malheur County:

a. T. 40 S., R. 46 E., Sec. 32

b. T. 33 S., R. 46 E., Sec. 13 & 14

c. T. 33 S., R. 46 E., Sec. 29 & 30

d. T. 40 S., R. 45 E., Sec. 21

Nevada: Elko County:

a. T. 45 N., R. 56 E., Sec. 32

b. T. 40 N., R. 54 E., Sec. 27

V. Soil Type: Shallow, poorly drained volcanic loams.

VI. Habitat and Ecology: The underlying soils determine the different sagebrush site distribution patterns. A. arbuscula occurs in shallow soils with a restrictive B horizon. A. papposa is found in similar sites with the additional features of being in rocky or non-rocky swales and drainages where water collects in the spring. Also A. papposa only occurs in areas where the soils are derived from basalt.

A. papposa flowers in early spring. Most other sagebrush species flower in late summer. A. longiloba (Nutt.) also flowers early in the season and is sporadically found with Artemisia papposa. Early flowering may be of some advantage in this ecological site. Also A. papposas' leaves dry up and are deciduous by late summer to help survive drought conditions. A. papposa has hairy leaves like other sages but lacks oil from glands. The lack of oils may explain its inability to withstand late summer drought and heat. Also the lack of large amounts of oil may contribute to its high palatability which is greater than associated sagebrush.

VII. Remarks: Sagebrush has increased on some western rangelands. This is caused by many factors including: (1) overgrazing of more palatable species and (2) the control of fire. Because of this situation range "improvement" programs are implemented to remove sagebrush from rangeland using a variety of methods.

VIII. Hazards: Sagebrush is treated with 2,4-D, other herbicides, plowing, and chained off (mechanically removing it). A. papposa is very sensitive to these chemical controls, especially the 2,4-D because of its large leaf surface and occurrence in drainage areas.

IX. Management Recommendations: I recommend protecting the majority of A. papposa sites from hazards. Not because of a low number of individuals but because of its fairly narrow range and its sensitivity to range "improvement" programs which often cover areas larger than any population of A. papposa. The threat of total destruction and thus the extinction of this species in the Boise district through range "improvement" by 2,4-D spraying is a real possibility.

The Vail district in Oregon, bordering the largest population of A. papposa known, sprayed very large areas with 2,4-D in 1976 as did the State of Oregon on its state land bordering the Owyhee Resource Area.

I. *Astragalus atratus* var. *owyheensis* (morning milk vetch)

II. Family: Legumenosae (Fabaceae)

III. Status: Federal Category II list.

IV. Known Locations:

Idaho: Elmore County:

a. T. 7 S., R. 13 E., Sec. 32

b. Bennett Mtn. area.

Owyhee County:

a. T. 14 S., R. 1 E., Sec. 26

b. T. 5 S., R. 9 E., Sec. 34

c. Hot Hole East of Bruneau.

d. T. 9 S., R. 13 E., Sec. 11

Twin Falls County:

a. Near the dam at Salmon Falls Creek

b. T. 14 S., R. 33 E., Sec. 7

c. T. 9 S., R. 13 E., Sec. 11

Oregon: Malheur County: T. 15 S., R. 40 E., Sec. 5

Baker County: 10 Km SW of Baker, OR, Blue Canyon

V. Soil Type: "stiff soil", (Davis 1952).

VI. Habitat and Ecology: *A. atratus* var. *owyheensis* grows on bluffs overlooking the Snake River Canyon surrounded by sagebrush.

VII. Remarks: The leaves of *A. atratus* var. *owyheensis* blend in with the leaves of grass and thus are not easily noticed. Also they are similar to the other variety *A. atratus* var. *inseptus*.

VIII. Hazards: Range "improvement" programs, increased agricultural development and overgrazing.

IX. Management Recommendations: Protect from hazards. Obtain more information and range locations.

I. Astragalus calycosus (matted milk vetch)

II. Family: Leguminosae

III. Status: Uncommon

IV. Known Locations:

Idaho: Elmore County:

a. T. 7 S., R. 13 E., Sec. 32

b. T. 14 S., R. 4 W., Sec. 29

Owyhee County: T. 14 S., R. 4 W., Sec. 29

Bingham County: T. 2 N., R. 32 E., Sec. 21

Bonneville County: T. 1 N., R. 37 E., Sec. 15

Power County: T. 8 S., R. 30 E., Sec. 22

Twin Falls County: T. 14 S., R. 15 E., Sec. 7

Oregon: Malheur County; T. 41 S., R. 40 E. Sec. 9

Nevada: Elko County: 3 sites

Eureka County: T. 17 N., R. 49 E., Sec. 20

Humboldt County: T. 41 S., R. 40 E., Sec. 9

Mineral County: 3 sites

Nye County: 6 sites

V. Soil Type: Unstable slipping lacustrine soil.

VI. Habitat and Ecology: A. calycosus grows in areas barren of other vegetation surrounded by sagebrush. It often occurs near the edge of canyon rimrock.

VII. Remarks: This Idaho collection and those in Nevada may be a new variety.

VIII. Hazards: Increased agricultural development.

IX. Management Recommendations: Protect completely until the difference in this variety is worked out. If it is not a unique variety then it will be of little concern because the species is fairly widespread.

I. Astragalus camptopus (Murphy milk vetch)

II. Family: Leguminosae (Fabaceae)

III. Status: Federal Category II

IV. Known Locations:

Idaho: Owyhee County:

a. T. 1 S., R. 2 W., Sec. 28 & 29
b. T. 1 S., R. 2 W., Sec. 33 & 34
c. T. 2 S., R. 2 W., Sec. 3 & 4
d. T. 2 S., R. 2 W., Sec. 23
e. T. 2 S., R. 2 W., Sec. 32
f. T. 3 S., R. 2 W., Sec. 10
g. T. 6 S., R. 3 E., Sec. 22
h. T. 7 S., R. 3 E., Sec. 2, 3 & 9
i. T. 7 S., R. 5 E., Sec. 20 & 21
j. T. 8 S., R. 6 E., Sec. 20
k. T. 2 S., R. 5 E., Sec. 20 - (not mine)
l. T. 7 S., R. 3 W., Sec. 4

V. Soil Type: Sandy or sandy loam.

VI. Habitat and Ecology: Grows in sandy soils that are disturbed. Often found on the edge of streambeds and along roadsides. A. camptopus was destroyed to some extent in the late spring by a moth eating the foliage. Sharah Richards also found insect infestation in 1977.

VII. Remarks: A. camptopus is an endemic known only from Murphy, Idaho to Bruneau, Idaho.

VIII. Hazards: Increased agricultural development, off-road vehicles and range "improvement" programs.

IX. Management Recommendations: All known locations should be protected from hazards and A. camptopus seeds should be collected and used in nearby reseeding operations on sandy soils.

I. *Astragalus iodanthus* var. *vipereus* (Idaho milk vetch)

II. Family: Leguminosae (Fabaceae)

III. Status: Uncommon

IV. Known Locations:

Idaho: Owyhee County:

a. T. 1 N., R. 3 W., Sec. 35
b. T. 1 S., R. 2 W., Sec. 17
c. T. 2 S., R. 2 ?., Sec. 4
d. T. 2 S., R. 1 W., Sec. 9
e. T. 2 S., R. 6 W., Sec. 14
f. T. 3 S., R. 6 W., Sec. 12 & 13
g. T. 3 S., R. 1 E., Sec. 7, 25, & 31
h. T. 4 S., R. 1 E., Sec. 5 & 17
i. T. 4 S., R. 1 W., Sec. 10, 11 & 24
j. T. 5 S., R. 1 E., Sec. 11
k. T. 7 S., R. 5 E., Sec. 18 & 20

Elmore County: T. 5 S., R. 9 E., Sec. 3

Oregon: Malheur County:

a. T. 31 S., R. 41 E., Sec. 14, 15, 22 & 23
b. T. 23 S., R. 46 E., Sec. 21
c. T. 22 S., R. 46 E., Sec. 32
d. T. 26 S., r. 46 E., Sec. 5

V. Soil Type: Volcanic ash.

VI. Habitat and Ecology: *A. iodanthus* var. *vipereus* grows at low elevations 2500' - 4000' on ashy soils.

VII. Remarks: *Astragalus iodanthus* var. *vipereus* grows sporadically on ashy soil. It has a wider range than other ash associated plants.

VIII. Hazards: Increased agricultural development, range "improvement" programs and off-road vehicles.

IX. Management Recommendations: None.

I. Astragalus mulfordae (mulford's milk vetch)

II. Family: Leguminosae

III. Status: Federal Category II recommended as endangered 1984

IV. Known Locations:

Idaho: Owyhee County: two historic collections.

a. T. 2 S., R. 1 W., Sec. 6

b. T. 7 S., R. 5 E., Sec. 20 12-15 miles S.E. of Grand View (historic record apparently absent from the site at this time).

Ada County:

a. T. 3 N., R. 2 E., Sec. 2

b. T. 2 S., R. 1 W., Sec. 6 NW 1/4 near Halverson Lake

c. Four historic collections from the county

d. T. 4 N., R. 2 E., Sec. 35 & 36 S.E. 1/4 S.W. 1/4

Washington County: Crystal

a. Rebecca Hill T. 11 N., R. 4 W., Sec. 32

b. Sagebrush Hill T. 11 N., R. 5 W., Sec. 35

c. Jon Trails private land T 9 N., R 5 W., Sec. 12

d. Hill 1 m north of Rebecca Sand Hill, T. 11 N., R. 4 W., Sec. 28 NW 1/4 of NW 1/4 BHMM #739 May 2, 1985

e. Historic sites (2)

Oregon: Malheur County:

a. Historic site T. 22 S., R. 45 E., Sec. 3 Brown Butte near Adrian.

V. Soil Type: Sandy soil in what is apparently old river and lake terraces.

VI. Habitat and Ecology: Astragalus mulfordae grows in the sagebrush/grassland life zone in very deep sandy soils of south or west facing slopes. It has a very deep (2-6 feet) root system.

VII. Remarks: Near Boise, Idaho, Astragalus mulfordae sites are in sandy draws which are presently highly erosive. This erosion physically covers over A. mulfordae plants. Urbanization is destroying much of A. mulfordae's habitat near Boise. It appears to be destroyed by grazing and is now only found in pristine sites. The populations near Boise and those near Weiser, Idaho, may be different varieties. More taxonomic work needs to be done on this taxon.

IX. Management Recommendations: Protect from all hazards.

I. Astragalus nudisiliquus (cobblestone milk vetch)

II. Family: Leguminosae

III. Status: Uncommon

IV. Known Locations:

Idaho: Owyhee County:

a. 8 miles south of Bruneau

b. T. 7 S., R. 6 E., Sec. 34

c. T. 3 S., R. 1 E., Sec. 7

d. Near Indian Bath tubs

Gooding County:

a. T. 5 S., R. 12 E., Sec. 6

b. T. 6 S., R. 13 E., Sec.

Elmore County: T. 6 S., R. 11 E., Sec. 14

Payette County: 4 sites

Ada County: 2 sites

Canyon County: 2 sites

T. 1 N., -3 3

Oregon: Malheur County:

26 sites

Harvey County: 1 site

Nevada: Elko County: T. 47 N., R. 57 E., Sec. 2

V. Soil Type: Well drained volcanic soils.

VI. Habitat and Ecology: Astragalus nudisiliquus often grows in barren soils between Artemisia arbuscula.

VII. Remarks: A. nudisiliquus is easily confused with A. purshii and better collections in the area are needed. A. nudisiliquus is uncommon even where it is known to occur.

VIII. Hazards: Heavy grazing, range "improvement" programs, off-road vehicles, insect predation and Desert Land Entry developments.

IX. Management Recommendations: None at this time.

I. Astragalus purshii var. ophiogenes (pursh's milk vetch, wolly pod)

II. Family: Leguminosae (Fabaceae)

III. Status: Uncommon

IV. Known Locations:

Idaho: Owyhee County:

a. T. 5 S., R. 9 E., Sec. 7
b. T. 1 S., R. 5 W., Sec. 17 & 20
c. T. 2 S., R. 1 W., Sec. 6 & 9
d. West Guffy Butte
e. T. 7 S., R. 3 E., Sec. 9
f. T. 3 S., R. 4 W., Sec. 10 NW 1/4
g. T. 4 S., R. 1 W., Sec. 10 & 23
h. T. 5 S., R. 7 E., Sec. line 33-34 NE 1/4 NE 1/4
i. T. 6 S,. R. 6 E., Sec. 10
j. See Packard et al. 1980
k. T. 5 S., R. 1 E., Sec. 21
1. T. 3 S., R. 13 E., Sec. 10
m. T. 2 S., R. 1 W., Sec. 6

Ada County:

a. T. 2 S., R. 1 E., Sec. 18
b. T. 1 S., R. 1 W., Sec. 31 & 32

Gooding County:

a. T. 9 S., R. 15 E., Sec. 4
b. T. 6 S., R. 12 E., Sec. 7

V. Soil Type: Various.

VI. Habitat and Ecology: Eroded, dry, rocky or sandy bluffs and dunes from 2500' - 4000'.

VII. Remarks: This variety is hard to identify. It appears to be quite common, (Packard 1977, Eidemiller 1976), and not in need of protecting. Many people don't collect it because it is such a frustrating group. Packard et al. worked on this taxon in 1980 and although "small groups of plants" were the common occurrence they felt no need to protect this taxon. I suggest it for the State Watch List.

VIII. Hazards: Range "improvement" programs.

IX. Management Recommendations: Some sites need to be protected because the taxon occurs in low elevation areas with high human contact and impact.

I. *Astragalus sterilis* (barren milk vetch)

II. Family: Leguminosae

III. Status: Federal Category II

IV. Known Locations:

Idaho: Owyhee County:

24 miles S.W. of Marsing (1948 Peck and Barneby)

Oregon: Malheur: 18 sites

V. Soil Type: Volcanic ash-clay.

VI. Habitat and Ecology: Grows in barren, ashy ground.

VII. Remarks: Some of the Oregon sites are misidentifications. Not seen in Idaho since 1948.

VIII. Hazards: Mining claims and off-road vehicles.

IX. Management Recommendations: Between the narrow range and being confined to one vulnerable habitat, this species is endangered and should receive full protection from any hazards.

I. Astragalus vallaris (Snake Canyon Milk vetch)

II. Family: Leguminosae (Fabaceae)

III. Status: Idaho State Sensitive List, recommended for Federal Category II

IV. Known Locations:

Idaho: Adams County:

a. T. 18 N., R. 4 W., Sec. 3, SE1/4 of SW1/4

b. T. 18 N., R. 4 W., Sec. 4, NE1/4 of SE1/4

c. In disturbed area in road cut at end of airstrip, Hells Canyon Reservoir, March 1973, C.G.. Brown 73-12

d. A historic record, NW of Weiser

Oregon: Baker County:

a. Snake River Canyon near Ballards Landing, NE Baker County, Oregon

Malheur County:

a. T. 14 S., R. 41 E., Sec. 34, historic site

V. Soil Type: Clay loam of basaltic origin.

VI. Habitat and Ecology: In bitterbrush and bluebunch wheatgrass communities in the Snake River Canyon.

VII. Remarks: Presently restricted to small widely dispersed populations. Barneby's work of the Astragulus genus shows only five known collections. This milk vetch blooms in late April and May before most plant collectors have reached the field. On May 11, 1984, Blaine Mooers found that the majority of plants were already in fruit. The two populations observed by Blaine Mooers in the Grand Canyon of the Snake were located on sites that were in good range condition due to their steepness and distance from water. The absence of this plant from rangeland in poor condition may indicate that livestock grazing has been responsible for severely reducing the number of populations within this species' range.

VIII. Hazards: Overgrazing and cow "improvement" programs.

IX. Management Recommendations: Survey for more locations early in the spring and monitor the known locations. Protect known locations from abusive grazing.

I. Astragalus yoder-williamsii (Osgood Mtns. milk vetch)

II. Family: Leguminosae

III. Status: Emergency listing as endangered on Federal List, 1982; now merely a candidate species category II.

IV. Known Locations:

Idaho: Owyhee County:

a. T. 9 S., R. 1 W., Sec. 3, 8, 10 (site uncertain and unable to be relocated)

b. Newly found locations:

1) T. 10 S., R. 5 W., Sec. 36 & 22

2) T. 10 S., R. 4 W., Sec. 21 & 31

3) T. 10 S., R. 3 W., Sec. 2, 8

4) T. 8 S., R. 1 W., Sec. 36

5) T. 7 S., R. 2 W., Sec. 6 & 7

Nevada: Humboldt County: T. 38 N., R. 42 E., Sec. 6

V. Soil Type: In Idaho it occurs in fine loamy, mixed, frigid, Typic Argixeroll soils. These soils are derived from local alluvium overlaying welded tuff. In Nevada known from decomposed granite gravel.

VI. Habitat and Ecology: In Nevada known from exposed ridge crests in vegetation dominated by Artemisia arbuscula. In Idaho it occurs in mixed Artemisia arbuscula and low growing Artemisia tridentata ssp. vaseyana sites. It occurs in the lower elevation ranges for Artemisia tridentata spp. vaseyana. Climatically this area is xeric and frigid. It disappears at elevations above 5900' and is absent below 5300'.

VII. Remarks: Astragalus yoder-williamsii is related to A. mulfordae which as a natural group displays much diversity of habit and niche selection. The A. mulfordae group appears to have evolved locally in the southwest Idaho and the adjacent Oregon and Nevada area. This area is sometimes referred to as the little Owyhee-Mudflat Area.

In the field it's visual appearance is similar to a clump of Idaho fescue. This may have delayed the detection of this species which appears to be fairly common on the south side of the Owyhee Mountains. It even grows on the disturbed shoulder of the road, in old road right-of-ways and in areas of fair-good range condition. These collections have been verified by Rupert Barneby the current expert on this generic group.

VIII. Hazards: ORV use on the easily eroded soil and mining operations are hazards to Astragalus yoder-williamsii.

IX. Management Recommendations: Protect from all hazards at this time. The exact range of A. yoder-williamsii in the Owyhee area should be determined. Studies on the basic ecology of A. yoder-williamsii and the effects of grazing should be undertaken. Monitoring sites should be established in several A. yoder-williamsii sites.

I. Camassia cusickii (Cusick's camass)

II. Family: Liliaceae

III. Status: On Idaho's sensitive species list

IV. Known Locations:

Idaho: Adams County:

a. T. 18 N., R. 4 W., Sec. 10, NE 1/4 of NE 1/4

b. T. 18 N., R. 4 W., Sec. 3, SW 1/4 of SW 1/4

c. T. 18 N., R. 4 W., Sec. 33, SW 1/4 of SE 1/4

d. T. 18 N., R. 4 W., Sec. 4, SE 1/4 of NE 1/4, NE 1/4 of SE 1/4

e. T. 18 N., R. 4 W., Sec. 9, SE 1/4 of SW 1/4, NW 1/4 of SW 1/4

f. T. 18 N., R. 4 W., Sec. 21, SW1/4 of NW1/4

g. T. 19 N., R. 4 W., Sec. 20

h. Snake River mi. 270.1, just below Oxbow Dam - 1974 historic record

i. Approximately 1 mi. N. of Oxbow Bridge - historic record

Gem County: Squaw Butte, T. 8 N., R. 1 W., Sec. 13, 24, 25

Washington County: Warm Springs Cr. (mapped at Spring Cr.), Brownlee Reservoir, Snake River T. 17 N., R. 5 W., Sec. 28 or 27

Ada County: T. 2 N., R. 4 W., Sec. 22 or 23

Oregon: Several sites - North Pine Creek and the Upper Imnaha River

V. Soil Type: Silt loam of basaltic origin.

VI. Habitat and Ecology: Steep south-facing areas and portions of streams with slow moving water within bitterbrush and bluebunch wheatgrass communities of the Snake River Canyon.

VII. Remarks: Found in Summer Creek, Limestone Gulch, Williamson Creek, and Jacobs Ladder Creek. Three miles south of Oxbow Dam. Apparently absent north of Oxbow Dam at this time. In Oregon, this plant has historically been found on open meadows. Livestock grazing (esp. sheep) may have removed the meadow populations and left the streamside populations in inaccessible places. Some populations found by Blaine Mooers on May 14, 1985 were grazed by cattle. Apparently, the present grazing pressure is eliminating this species from public lands.

VIII. Hazards: Road construction across streams and by livestock grazing.

IX. Management Recommendations: Monitor and protect from hazards.

I. *Carex aboriginum* (Indian Valley Sedge)

II. Family: Cyperaceae

III. Status: Federal Category II list.

IV. Known Locations:

Idaho: Adams County:

Indian Valley - (type collection) Coll. July 12, 1899 by M.E. Jones. Collection is in the New York Botanical Garden Herbarium.

V. Soil Type: "Dry gumbo soil wet in the spring."

VI. Habitat and Ecology: *Carex aboriginum* appears to occur in gumbo soil but with so few collections little more can be said. Collected at 2300 feet in Idaho.

VII. Remarks: "This species needs field investigation and may be extinct, but the notably rich representation of the Cyperaceae in the type locality suggests that it may still exist."

Mackenzie's "*C. aboriginum*," in North American Flora 18:364, is completely different from Jones' type collection (which is actually closely related to *C. serratodens*) and is really a variant of *C. parryana* (var. *brevisquama*).

VIII. Hazards: None known at the present time.

IX. Management Recommendations: Field work needs to be done in the Indian Valley area in late June-July to see if *C. aboriginum* is still present.

I. Chaenactis cusickii (cusick's false yellow)

II. Family: Compositae

III. Status: Idaho State sensitive list.

IV. Known Locations:

Idaho: Owyhee County:

T. 2 N., R. 5 W., Sec. 22 & 27

Oregon: Malheur County:

a. T. 23 S., R. 43 E., Sec. 12

b. T. 22 S., R. 47 E., Sec. 32

c. T. 25 S., R. 44 E., Sec. 34

d. T. 2 N., R. 46 E.,

e. 4 other Malheur County sites.

V. Soil Type: Loose volcanic ash mixed with a small pick up of clay.

VI. Habitat and Ecology: Chaenactis cusickii grows on loose volcanic ash with a pick up of clay in it. This soil expands and contracts so is very unstable. It is found at low elevations 2500' - 3200'. C. cusickii is an annual.

VII. Remarks: This species has only been found in one location in Idaho and is endemic to one soil type.

VIII. Hazards: Off-road vehicles and mining. This substrate can be used to line and seal irrigation ditches.

IX. Management Recommendations: Protect from all hazards. This soil type and habitat is very inviting to off-road vehicles. The one site in Idaho is on private land that should be acquired for protection.

I. Cryptantha propria (Idaho cryptantha)

II. Family: Boraginaceae

III. Status: Idaho State sensitive list.

IV. Known Locations:

Idaho: Owyhee County:

a. T. 2 S., R. 4 W., Sec. 24 NW, NE

b. Squaw Creek

Oregon: Malheur County:

a. T. 32 S., R. 41 E., Sec. 6

b. T. 26 S., R. 45 E., Sec. 19 & 30

c. T. 26 S., R. 44 E., Sec. 11

d. T. 19 S., R. 41 E., Sec. 17

V. Soil Type: Loose, bare soil, ash or diatomite.

VI. Habitat and Ecology: Dry, open hillsides.

VII. Remarks: It has a wider range than other plants occurring on ash. The taxon is being reworked and should be reevaluated at that time. It is difficult to determine species and therefore many collectors avoid it. This may give an unreal variety because of the lack of collections.

VIII. Hazards: Range "improvement" programs, heavy grazing and mining.

IX. Management Recommendations: Cryptantha propria should be dropped from any threatened list and treated as uncommon. These uncommon sites should be mapped.

I. Cymopterus acaulis var. greeleyorium (Greenley's biscuitroot)

II. Family (Apiaceae (umbelliferaceae)

III. Status: Idaho State sensitive list.

IV. Known Locations:

Idaho: Owyhee County:

a. T. 6 S., R. 6 W., Sec. 22, near Bruneau Sand Dunes State Park

b. one other site

Oregon: Malheur County:

a. SE of Rockville, Idaho

b. Near Rockville School on Succor Creek

c. NW side of road about 1 mile below Succor Creek Canyon

V. Soil Type: Sandy loam or ash deposits of the Succor Creek formation which weathered to clay.

VI. Habitat and Ecology: The Idaho site differs greatly from the Oregon site. Yet the sites are similar in that they have a lot of soil movement. The sand is loosely held together while the clay soil shrink-swell greatly.

VII. Remarks: This variety differs from the common variety by having bright yellow flowers rather than white flowers and the ultimate segments of the leaves tend to be somewhat larger than those of the common variety.

VIII. Hazards: Off-road vehicles.

IX. Management Recommendations: This species should be protected from the growing off road vehicle recreationist. This site is on the boundary of the annexation of the Bruneau Sand Dunes State Park. This species should be sought for in other areas early in the year. Collections should also be made of the plant in seed later in the spring.

I. Cymopterus corrugatus (Cymopterus) (syn. Rysopterus plurijugas)

II. Family: Umbelliferae (Apiaceae)

III. Status: Uncommon.

IV. Known Locations:

Idaho: Owyhee County:

a. T. 7 S., R. 2 E., Sec. 23 & 29

b. T. 8 S., R. 3 E., Sec. 36

c. T. 8 S., R. 2 E., Sec. 3, SW 1/4

d. T. 5 S., R. 1 W., Sec. 26

e. South Fork of Rabbit Creek

f. South Owyhee Area - Cecil Judd. T. 13 S., R. 6 E., Sec. 12

g. T. 7 S., R. 4 E., Sec. 29

Canyon County: Dautrich Memorial Desert Preserve

Oregon: Malheur County: T. 24 S., R. 44 E., Sec. 28

Harney County:

East Lake County:

V. Soil Type: Often associated with diatomite.

VI. Habitat and Ecology: Grows in loose, dry ground with Artemisia spinescens/Poa community.

VII. Remarks: Idaho collections are the eastern extent on R. plurijugas range. This plant flowers early and is more common than indicated by the recorded collections. This plant occurs on unique sites but these sites are fairly common and are not hard hit by grazing, therefore are in little danger. I believe this taxon could be dropped from any lists and considered an uncommon taxon.

VIII. Hazards: Increased agricultural development, off-road vehicles and spring grazing.

IX. Management Recommendations: None.

I. Dimeresia howellii (Dimeresia)

II. Family: Compositae

III. Status: Idaho State sensitive list.

IV. Known Locations:

Idaho: Owyhee County:

a. T. 3 S., R. 3 W., Sec. 20 NE NE

b. T. 10 S., R. 6 W., Sec. 1

c. Near ridge top dividing Reynolds Creek and Squaw Creek.

d. T. 9 S., R. 6 W., Sec. 36 - near Northfork Crossing.

e. T. 10 S., R. 5 W., Sec. 6

f. Shares Basin, T. 1 S., R. 4 W., Sec. 6

g. South of Shares Basin, T. 1 S., R. 5 W., Sec. 13

Oregon: Malheur County: T. 40 S., R. 39 E., Sec. 19

Harney County: T. 20 S., R. 35 E.

Nevada: Elko County: T. 42 N., R. 53 E., Sec. 2

Humboldt County: Windy Gap in the Santa Rosa Mtns., T. 45 N., R. 39 E., Sec. 23

Washoe County: Known

California: Present in the two Northeast Counties

V. Soil Type: Volcanic gravel, cinder size (approx. 1 cm. diameter).

VI. Habitat and Ecology: Dimeresia howellii grows in course volcanic gravel at mid-elevations near 5000' in sites that collect water in the spring. The habitat is surrounded by sagebrush but no other plants occur directly with Dimeresia except some annual Eriogonums. Idaho is on the Northeast edge of Dimeresia's range. It is more common and grows larger in Nevada.

VII. Remarks: This species is fairly rare in Idaho. It is small and not very noticeable.

VIII. Hazards: Off-road vehicles; its habitat protects it from most other hazards.

IX. Management Recommendations: Protect from hazards.

I. Draba douglasii var. douglasii (Douglas Draba)

II. Family: Cruciferae

III. Status: Uncommon

IV. Known Locations:

Idaho: Owyhee County:

a. T. 3 S., R. 6 W., Sec. 14 SW

b. T. 3 S., R. 6 W., Sec. 12 & 13

c. T. 9 S., R. 4 W., Sec. 5

d. T. 9 S., R. 5 W., Sec. 21 SE

e. T. 14 S., R. 1 W., Sec. 36 SW SW 1/4

f. Upper Succor Creek

g. Deep Creek Area - T. 12 S., R. 2 W., Sec. 22

h. Noon Creek Summit

Elmore County:

a. T. 3 S., R. 11 E., Sec. 3 SW 1/4

b. T. 3 S., R. 10 E., Sec. 29, 19

Camas County: T. 1 N., R. 12 E., Sec. 30 SE 1/4

Oregon: Malheur County: ----

Harney County: ----

Nevada: Elko County: ----

Humboldt County: Santa Rosa Mountains

V. Soil Type: Rocky, gravelly soil, or water-laden ash soil.

VI. Habitat and Ecology: In sagebrush county; in soil locations too shallow for sagebrush. Draba douglasii likes course textured soils.

VII. Remarks: A perennial that grows in a harsh environment.

VIII. Hazards: Off-road vehicles.

IX. Management Recommendations: It is fairly widely distributed and although not common, it is found in various soil types. Also the range and frequency may be wider than indicated by collections because of the early flowering time, the small size and superficial resemblance to other common species. Presently it is not in need of protection.

I. Eatonella nivea (white Eatonella)

II. Family: Compositae

III. Status: Idaho State sensitive list.

IV. Known Locations:

Idaho: Owyhee County:

a. T. 2 S., R. 3 W., Sec. 17

b. T. 3 S., R. 1 E., Sec. 7 - Sinker Creek

c. T. 3 S., R. 1 E., ---

d. T. 8 S., R. 6 W., Sec. 21 NW

e. T. 8 S., R. 6 E., Sec. 16

f. T. 15 S., r. 4 W., Sec. 22 NE of SE

Elmore County: T. 4 S., R. 11 E.

Custer County:

a. Ripley & Barneby - 8827 1947; 4 miles south of Challis, steep gravel.

b. several other sites

Oregon: Malheur County: 2 sites

Custer County: 1 site

Harney County: 1 site

V. Soil Type: Dry, sandy or cindery areas as low as 2500'.

VI. Habitat and Ecology: Barren ground with the surrounding area usually sagebrush.

VII. Remarks: Eatonella nivea occurs in the same soil type as Peteria thompsonae.

VIII. Hazards: Off-road vehicles.

IX. Management Recommendations: It is not well collected nor abundant and should be watched. It occurs in basaltic cinder soil which is inviting to off- road vehicles. This soil type is uncommon and near Indian Bath Tub where the proper soil type and another uncommon plant, Peteria thompsonae, both occur there is heavy recreational and off-road vehicle use; Eatonella nivea is missing. This may indicate that Eatonella nivea is sensitive to spring trampling and can only exist in less disturbed areas. The present locations could be fenced from grazing and off-road vehicles.

I. Enceliopsis nudicaulis (Enceliopsis)

II. Family: Compositae

III. Status: Uncommon.

IV. Known Locations:

Idaho: Owyhee County:

a. T. 5 S., R. 1 E., Sec. 11

b. T. 7 S., R. 3 E., Sec. 2 & 3

c. T. 7 S., R. 3 E., Sec. 18

d. T. 6 S., R. 6 E., Sec. 13 & 14

e. T. 8 S., R. 6 W., Sec. 9 SW

f. T. 8 S., R. 3 W., Sec. 2

g. T. 7 S., R. 2 E., Sec. 23

h. Bruneau Dunes State Park

i. Bruneau Hot Falls

Custer County: T. 10 N., R. 19 E., Sec. 1

V. Soil Type: Sandy or gravelly.

VI. Habitat and Ecology: Barren rocky, sandy or gravelly. Butte tops to flat, sandy areas.

VII. Remarks: Tomentose leaves seem well adapted to dry, windy sites. The leaves are tuffed and basally arranged creating a micro-habitat for the plant. The large taproot must store the spring rain and flowering occurs in June.

VIII. Hazards: Off-road vehicles and increased agricultural development.

IX. Management Recommendations: The areas should be noted and watched but the range is wide enough at this time that no special management is needed.

I. Eremocarpus setigerus (Doveweed)

II. Family: Euphorbiaceae

III. Status: None.

IV. Known Locations:

Idaho: Ada County: several locations

a. T. 1 S., R. 2 E., Sec. 27

b. T. 2 S., R. 4 E., Sec. 29

Gem County: T. 6 N, R. 2 W.

Canyon County: T. 5 N., R. 2 W.

Elmore County:

a. Hot Creek - T. 3 S., R. 8 E., Sec. 21

b. well drained slope above Hot Creek area - T. 3 S., R. 8 E., Sec. 15

Payette County: T. 6 N., R. 5 W., Sec. 12 SW 1/4

Oregon:

a. Malheur County: T. 24 S., R. 44 E., Sec. 25

b. Several western counties

Nevada: Several sites

V. Soil Type: Sandy and gravelly creek bottoms and well drained slopes.

VI. Habitat and Ecology: Eremocarpus setigerus grows in sandy creek bottoms late in the summer and is an annual that produces very large seeds. These seeds are a good food source for wildlife. The plant has dense stellate hairs which sting. These hairs must protect the plant from grazing. Late summer rains are important to this species which is growing when most other annual species are dried up and dead.

VII. Remarks: This is a range extension for Eremocarpus setigerus. It has possibilities in range rehabilitation after fires in the area. It appears to be a weedy annual species which can persist for many years dormant and sprout after a fire or plowing of the soil. Although rarely collected alot, it is common.

VIII. Hazards: None at the present time.

IX. Management Recommendations: No protection needed. This species is somewhat weedy and in no threat.

I. Erigeron disparipilus Cronq. (Snake River daisy)

II. Family: Compositae

III. Status: Idaho State sensitive list.

IV. Known Locations:

Idaho: Owyhee County:

New York Summit - T. 4 S., R. 2 W., Sec. 5

Elmore County:

a. T. 4 S., R. 11 E., Sec. 30

b. T. 4 S., R. 10 E., Sec. 15

Oregon: 3 sites

Washington: Wallowa County: Questionable site and identification

V. Soil Types: Rocky outcrops.

VI. Habitat and Ecology: Dry, rocky outcrops at (4000' - 6000') moderate elevations.

VII. Remarks: Dr. Packard is uncertain of the identification of the New York Summit material. This plant is endangered and not doing very well.

VIII. Hazards: No hazards posed by nature of its habitat.

IX. Management Recommendations: Full protection.

I. Erigeron latus (no common name)

II. Family: Compositae

III. Status: Federal Category II

IV. Known Locations:

Idaho: Owyhee County:

a. Red Canyon - T. 12 S., R. 4 W.

b. SE Brace Brothers Ranch - T. 13 S., R. 3 W., Sec 27

c. 5 miles south of Mudflat

Cassia County: 10 miles south of Albion; Mt. Harrison, Idaho.

Twin Falls County: 26 miles west of Rogerson

Nevada: Elko County:

a. T. 43 N., R. 55 E., Sec. 9

b. T. 44 N., R. 6 E., Sec. 28

V. Soil Type: Volcanic tuff.

VI. Habitat and Ecology: Erigeron latus grows in barren areas surrounded by sagebrush.

VII. Remarks: No comment.

VIII. Hazards: None apparent at this time for the known locations.

IX. Management Recommendations: None.

I. Eriogonum ochrocephalum var. sceptrum (ochra-flowered Eriogonum)

II. Family: Polygonaceae

III. Status: Uncommon.

IV. Known Locations:

Idaho: Owyhee County:

a. 11 miles SW of Bruneau (Reveal #3687 July 1974)

b. 10 miles south of Bruneau (Holmgren #26236 24 April 1946)

c. 10 miles south of Twin Falls (Holmgren #26239 31 April 1946)

d. SE of Payette (Ripley and Barneby #6546)

e. T. 5 S., R. 1 W., Sec. 8 (Rosentreter #268 August 1978 RR-1978)

f. T. 7 S., R. 3 E., Sec. 5

V. Soil Type: Lacustrine.

VI. Habitat and Ecology: E. ochrocephalum var. sceptrum grows in barren lacustrine soils at elevations below 4000'.

VII. Remarks: The variety is not official until Reveal publishes his monograph on the Eriogonum. Apparently Reveal and I collected the variety in mid-summer and the older collections by Holmgren were collected in early spring. I would say that more work is needed on this variety to determine its true range and frequency. It may occur more but few people collect in the desert in mid-summer when E. ochrocephalum var. sceptrum flowers.

VIII. Hazards: Increased agricultural development, and off-road vehicles.

IX. Management Recommendations: Protect known locations until the variety and its status is determined.

I. Eriogonum salicornoides (annual salt Eriogonum)

II. Family: Polygonaceae

III. Status: Uncommon

IV. Known Locations:

Idaho: Owyhee County:

a. T. 15 S., R. 5 W., Sec. 28

b. T. 2 S., R. 4 W., Sec. 23

c. Oregon - Idaho border

Oregon: Malheur County:

a. T. 26 S., R. 44 E., Sec. 5 & 6

b. T. 28 S., R. 41 E., Sec. 29

V. Soil Type: Loose, white gypsiferous, ashy clay soil.

VI. Habitat and Ecology: E. salicornoides is an annual that grows on ashy clay soil in bare, alkaline desert soils. It is endemic to S.W. Idaho and adjacent Oregon.

VII. Remarks: E. salicornoides is poorly collected and more information is needed.

VIII. Hazards: Mining, increased agricultural development and off-road vehicles.

IX. Management Recommendations: No recommendation at this time.

I. Eriogonum shockleyi var. shockleyi Reveal (matted cow pie Eriogonum)

II. Family: Polygonaceae

III. Status: Uncommon

IV. Known Locations:

Idaho: Owyhee County:

a. T. 7 S., R. 5 E., Sec. 20

b. T. 7 S., R. 6 E., Sec. 18

c. T. 5 S., R. 5 E., Sec. 14

d. T. 6 S., R. 6 E., Sec. 26

e. T. 6 S., R. 9 E., Sec. 8 (John Doremus)

Ada County:

a. T. 1 S., R. 1 W., Sec. 32 NW 1/4 NW 1/4

b. T. 1 S., R. 1 W., Sec. 35 SE 1/4 NE 1/4

c. T. 1 S., R. 1 W., Sec. 28 SE 1/4 SE 1/4 (Jarbidge Resource Area)

V. Soil Type: Round, smooth gravel.

VI. Habitat and Ecology: Eriogonum shockleyi shockleyi grows on round, smooth gravel on wind swept buttes near geothermal areas in the low land areas near Bruneau, Idaho.

VII. Remarks: This taxon is poorly defined taxonomicly.

VIII. Hazards: Increased agricultural development and off-road vehicles.

IX. Management Recommendations: E. shockleyi var. shockleyi should be protected from all hazards.

I. Eriogonum thymoides (thyme-leafed Eriogonum)

II. Family: Polygonaceae

III. Status: Uncommon; deleted from Idaho's sensitive list in 1985.

IV. Known Locations:

Idaho: Blaine County: several sites

Camas County:

a. 14 miles SE Fairfield

b. T. 1 N., R. 21 E., Sec. 32 SW 1/4 of NW 1/4

c. T. 1 N., R. 21 E., Sec. 35 - along Road Canyon Road

Elmore County: 1 site

Gooding County: T. 3 S., R. 12 E., Sec. 8

Washington County:

a. T. 12 N., R. 6 W., Sec. 29 & 30

b. T. 13 N., R. 4 W., Sec. 16 & 30

c. T. 13 N., R. 4 W., Sec. 21, SE 1/4 of SE 1/4

Adams County: 1 site

Washington: Several sites

Oregon: Several sites

V. Soil Type: Very shallow, rocky basalt.

VI. Habitat and Ecology: Eriogonum thymoides occurs in very shallow, rocky basaltic soils in sagebrush/grassland areas. Its revolute leaves and perennial nature are well adapted to a shallow soil in the dry desert.

VII. Remarks: E. thymoides is common in the Bennett Hills area and has a wide distribution from there to Chelan County, Washington. It is uncommon in the Washington County area though. Also, more than half the herbarium collections known were collected before 1940. However, sites where it has been observed with cows have had no apparent browsing by those cows. The individual plants often appear to be fairly old individuals. A study of their stand age structure would be of interest.

VIII. Hazards: Range "improvement" programs, and collecting by "bonsai" and rock gardners are threats to this plant. It is locally jeopardized by collectors especially sites near highways. Sites are also inviting to off-road vehicles which could damage E. thymoides at any time of the year, not just in the spring like many other non-woody desert plants.

IX. Management Recommendations: Be aware of locations and don't publicize these known locations so not to encourage garden collectors. More location voulchers should be collected. A stand age structure study may indicate low reproductive success and if so this plant should be protected. Protection would necessitate a change in status to Idaho's sensitive plant list. However, a gradient in stand age structure would support less need to protect and if so this species should be dropped considered a stable species.

I. *Glossopetalon nevadense* (spiny green bush)

II. Family: Celastraceae

III. Status: None.

IV. Known Locations:

Idaho: Owyhee County:

a. Jump Creek Canyon

b. Wild Cat Canyon

c. Squaw Creek Canyon

d. Several more canyons in the Boise District

Idaho County:

a. Upper and Lower Main Salmon River Canyon

b. Hells Canyon

c. Middle fork of the Salmon River

d. Near Slate Creek on the Main Salmon

Nevada: ----

Oregon: ----

California: ----

V. Soil Type: Basaltic, vertical canyon walls.

VI. Habitat and Ecology: *G. nevadense* grows in cracks on basaltic, vertical canyon walls. *G. nevadense* seems to require high humidity at some time in the season and very warm temperatures at another time during the growing season.

VII. Remarks: *G. nevadense* seems to be in most canyons where one looks and is generally wide-ranging.

VIII. Hazards: None; *G. nevadense* is protected by nature of its own habitat preferences. Possibly a decrease in stream flow caused by dams would decrease the humidity and destroy the G. nevadense downstream.

IX. Management Recommendations: Drop from any threatened lists. No special management necessary.

I. Glytopleura marginata (white margined wax plant)

II. Family: Compositae

III. Status: Idaho State sensitive list.

IV. Known Locations:

Idaho: Owyhee County:

a. T. 7 S., R. 6 W., Sec. 34

b. T. 4 S., R. 1 E., near Foremans Reservoir

California: ----

Nevada: ----

Oregon: ----

Utah: ----

V. Soil Type: Small marble-sized and smaller, basaltic cinder (approx. 1 cm - 1 mm diameter).

VI. Habitat and Ecology: Glytopleura marginata grows in warm, dry microsites barren of other vegetation. The plant is small and has a tap root. Collection sites in Idaho have only had a handfull of individual plants.

VII. Remarks: More information is needed on this species in Idaho.

VIII. Hazards: Off-road vehicles, increased agricultural development, range "improvement" programs, and heavy recreational use of the nearby Hot Springs area.

IX. Management Recommendations: None at this time.

I. Gymnosteris nudicalius (large flowered Gymnosteris)

II. Family: Polemoniaceae

III. Status: Idaho State sensitive list.

IV. Known Locations:

Idaho: Owyhee County:

T. 1 N., R. 5 W., Sec. 7

Elmore County:

a. T. 5 S., R. 10 E., Sec. 3

b. T. 5 S., R. 8 E., Sec. 23 & 24

c. T. 5 S., R. 9 E., Sec. 32

d. T. 8 S., R. 8 E., Sec. 18

Blaine County:

T. 1 S., R. 19 E.

Twin Falls County:

T. 7 S., R. 1

Oregon: Malheur County:

T. 15 S., R. 39 E., Sec. 17

V. Soil Type: Sandy - sandy loam.

VI. Habitat and Ecology: G. nudicalius grows in open somewhat sandy areas among sagebrush. G. nudicalius is a weak-stemmed annual. There are white, lavender and yellow flowered individuals. These may be separate populations but appear to be polymorphic. According to Dr. Packard, the lavender was the most common color; while in 1978, yellow was the most common color observed and collected. No sites were encountered during the 1979 field season.

VII. Remarks: In older collections G. nudicalius was noted as common; now it is rarely seen. This drastic change in frequency is alarming.

VIII. Hazards: Trampling by heavy grazing, range "improvement" programs, increased agricultural development and off-road vehicles.

IX. Management Recommendations: Watch this species in the future and give full protection from hazards. Since this species is an annual, it may not occur often or perhaps is infrequently collected. Seems to be on a sharp decline in numbers.

I. Gymnosteris parvula (small flowered Gymnosteris)

II. Family: Polemoniaceae

III. Status: Uncommon (fugitive).

IV. Known Locations:

Idaho: Owyhee County:

a. T. 9 S., R. 1 E., Sec. 13 NE

b. T. 10 S., R. 4 W., Sec. 1

c. T. 3 S., R. 16 E., Sec. 9

d. Winter Camp

e. 1 mile north of Mud Flat Rd. from up Pleasant Valley Creek.

Lincoln County: T. 3 S., R. 16 E., Sec. 16 NE 1/4

Blaine County: Alturas Lake Cronquist 2567

Oregon: Malheur County

Malheur Biological Field Station

Montana: ----

Nevada: ----

V. Soil Type: Loam

VI. Habitat and Ecology: G. parvula grows under the protective branches of Artemisia tridentata.

VII. Remarks: G. parvula is a small annual which is adversely affected by disturbance such as grazing.

VIII. Hazards: Trampling by grazing, range "improvement" programs, increased agricultural development and off-road vehicles.

IX. Management Recommendations: Recommend adding to the State watch list and to gather more information about the species.

I. Hackelia ophiobia Carr. (Owyhee River stick seed)

II. Family: Boraginaceae

III. Status: Idaho State sensitive list.

IV. Known Locations:

Oregon: Malheur County:

Three Forks first collected in 1957, not collected since that time till recently and first described in Madrono 22:390-392, 1974 by Robert L. Carr.

Nevada: Washoe County:

Sheldon Antelope National Wildlife Refuge in Nevada.

Humboldt County:

a. A. Tiehm #4491 and B. Rogers 1978 - East part of Thousand Creek Gorge, 2. 5-3. 5 air miles NW of Range HQ Duffurena Ranch, T. 46 N., R. 26 E. With Poa on a steep bank above creek.

b. T. 42 N., R. 43 E., Sec. 15 SE1/4

c. T. 42 N., R. 43 E., Sec. 17 - North Fork Humboldt River

Elko County:

a. M.P. & M.J. Yoder-Williams #1802, 27 August 1980. Upper gorge of Milligan Creek, 0.53 mile SSW of Four Mile Butte, T. 42 N., R. 45 E., Sec. 18, NW1/4, 5125 ft. Plants extending along the base of a NE facing cliff face for a short distance.

b. Side creek off the Upper South Fork of the Owyhee River. Rosentreter 1982.

Idaho: Owyhee County:

a. Upper East Fork of the Owyhee River.

b. Several side drainages off the South Fork of the Owyhee River.

c. Deep Creek off the East Fork of the Owyhee River.

V. Soil Type: Talus and crevices on rhyolitic rock, associated with the moss-Homalothecium aeneum.

VI. Habitat and Ecology: Hackelia ophiobia appears to be restricted to certain rhyolitic rock types. In Idaho it is found only in shaded locations and north facing cliffs and talus. It flowers in early April

and is most common in the headwaters and occurs only occasionally downstream. The East Fork is oriented in a east-west direction with much of the south side of the canyon north facing. The South Fork of the Owyhee runs in a south-north direction and has fewer north facing cliffs and apparently lacks H. ophiobia except on side drainages.

VII. Remarks: Hackelia ophiobia occurs in small disjunct populations and should be looked for more. Careful comparison studies should be undertaken of the different populations. It always grows in areas far from human influences and a look at historic heavy grazing in some of the other sections of the Owyhee River and the Bruneau River suggest that it may be sensitive to grazing. The most common site for its growth is at the base of cliffs rather than in crevices on the East Fork of the Owyhee River. It may just be in crevices as a refugia. The species name ophiobia refers to snake and it would seem that a field botanist named this after the common occurrence of snakes in Hackelia ophiobia sites.

VIII. Hazards: Grazing in the river canyons. Desert bighorn sheep could also possibly affect its existence although the Deep Creek area which has a lot of sheep showed no adverse effects on Hackelia. Daming of the Owyhee River would destroy its habitat.

IX. Management Recommendations: Protect known populations from all hazards and map its distribution area.

I. Haploppapus radiatus (Snake River Goldenweed)

II. Family: Compositae

III. Status: Federal Category II

IV. Known Locations:

Idaho: Washington County:

a. T. 14 N., R. 6 W., Sec. 10 (4th of July Meadow - 1 1/2 miles east of Mineral)

b. T. 11 N., R. 5 W., Sec. 33 (approx.)

Four historic sites, including:

a. T. 11 N., R. 5 W., Sec. 3 (1941)

b. T. 17 N., R. 5 W., Sec. 26 (1952)

Oregon: 35 sites - Meinke

a. Approximately 0.5 miles from Interstate I80N along Big Lookout Mountain Road until 2.5 mile marker

b. Snake River Canyon between Bonyard Gulch and the Snake River Mine

V. Soil Type: Gravelly loams.

VI. Habitat and Ecology: Haplopappus radiatus occurs in Artemisia tridentata ssp. tridentata habitats with skeletal gravelly loam soils near the Snake River. These sites are in fair-poor range condition. It is very sensitive to insect predation. In 1985, it was heavily eaten by grasshoppers. No seedling establishment was found in Idaho and it appears that annual exotic grasses out compete the seedlings.

VII. Haplopappus radiatus is difficult to notice early in the spring and therefore, avoids detection. Later in the summer, grasshoppers can eat it to a skeletal ugly sample which doesn't make for good specimen collecting. I believe there may be several more sites of this flower but the area was only inventoried in the spring of the year. The reproductive success of this species appears to be very low.

VIII. Hazards: Competition from exotic annuals appears as the most critical threat to H. radiatus. Grazing, ORV use, and wild fires are also threats to this plant.

IX. Management Recommendations: This plant is in need of further inventory and the known site should be monitored, making particular note of seedlings, seedling success, competition, and dispersal. Protect the known site and monitor the populations' reproductive success.

I. *Ivesia baileyi* (Bailey's Ivesia)

II. Family: Roseaceae

III. Status: Uncommon.

IV. Known Locations:

Idaho: Owyhee County

a. Jump Creek Canyon - T. 2 N., R. 5 W., Sec. 27

b. Most of the canyon portions of the North Fork of the Owyhee River.

T. 9 S., R. 4 W., Sec. 10, 11, 14, 15, 22, 27, 31, 32, 33

T. 9 S., R. 5 W., Sec. 31, 32, 33, 34, 35, 36

T. 10 S., R. 6 W., Sec. 1, 3, 10, 11

c. Red Canyon - T. 13 S., R. 4 W., Sec. 29, 31

T. 13 S., R. 4 W., Sec. 6, 7, 18, 19

d. South of Brace Ranch - T. 13 S., R. 3 W., Sec. 27, 28

e. Bruneau River Canyon - the entire length of the canyon.

f. Occurs along most of the Jarbidge River.

g. Flint Creek

h. Cougar Canyon

i. Big Jack's Creek Canyon

j. Little Jack's Creek Canyon

k. East Fork Owyhee River

l. Deep Creek of the Owyhee River

m. Middle Fork of the Owyhee River

n. Cottonwood Creek of Jack's Creek Drainage

Elmore County:

South Fork of the Boise River Canyon - T. 2 N., R. 6 E., several sections.

Oregon: Malheur County:

Three forks of the Owyhee River crossing - just upstream.

T. 34 S., R. 46 E., Sec. 35

Harney County: 14 sites.

Nevada: Elko County:

a. T. 47 N., R. 64 E., Sec. 4 on Salmon Falls Creek

b. One other site reported for Elko County

Humboldt County: 1 site.

a. Quin River

b. North Fork Humboldt River: 41° 31' latitude, 117° 7' longitude

Pershing County:

a. Buena Vista Creek - T. 30 N., R. 34 E., Sec. 27, NW 1/4

V. Soil Type: Rhyolitic cliffs.

VI. Habitat and Ecology: Ivesia baileyi grows in moist sites on vertical canyon walls. It occurs near rapids or areas with high humidity. Last year's stalks remain attached and flowering occurs all summer. The leaves and stems have numerous hairs that form a micro-habitat of humidity around themselves.

VII. Remarks: This roseaceae is delicate and most passing boaters going down the canyons think it's a fern. Many locations of this plant are difficult to reach except by boating the river canyons; most ideal sites are near fast-moving water, so the boaters aren't noticing the plants as carefully as they're noticing the rapids. I suspect Ivesia baileyi occurs in more locations but has not been collected because of the preoccupation of boaters with the rapids.

VIII. Hazards: Dams flooding the canyons and atmospheric pollution (the leaves and stems collect dust readily, probably as a source of nutrients). Aerial spraying of the range above the canyon with 2,4-D or spraying crops, could damage Ivesia more than other plants.

IX. Management Recommendations: Dr. Packard and I feel that it occurs widely enough, plus is protected by its choice of habitat, so that it should be removed from any sensitive list. Therefore, there is no need for special management recommendations.

I. Langloisia puncata (bristly langloisia)

II. Family: Polemoniaceae

III. Status: None (Disjunct annual species).

IV. Known Locations:

Idaho: Owyhee County:

a. T. 1 N., R. 3 W., Sec. 35
b. T. 1 S., R. 2 W., Sec. 29
c. T. 2 N., R. 4 W., Sec. 15, 21, 22
d. T. 2 N., R. 5 W., Sec. 22 & 27
e. T. 2 S., R. 2 W., Sec. 4 & 14
f. T. 3 N., R. 6 W., Sec. 35
g. T. 3 S., R. 2 W., Sec. 10
h. T. 4 S., R. 1 W., Sec. 3 & 24
i. T. 4 S., R. 1 E., Sec. 18
j. T. 7 S., R. 3 E., Sec. 2, 3, 5
k. T. 7 S., R. 5 E., Sec. 21
l. T. 7 S., R. 6 E., Sec. 18

Ada County: T. 3 S., R. 1 E., Sec. 5

Elmore County:

a. T. 4 S., R. 1 E., Sec. 5
b. T. 6 S., R. 11 E., Sec. 23

Oregon: Malheur County:

T. 20 S., R. 44 E., Sec. 12

V. Soil Type: Various disturbed sites, including sandy soil, gravel, lacustrine, ash-clay.

VI. Habitat and Ecology: Annual disturbed site species of dry places. This species is often misidentified by most botanists. This is because most flora books for the area don't list L. puncata. L. puncata differs from L. setosissima by the presence of colored dots on the petals and by two grooves for each petal which comes from the floral tube and ends in the base of each petal. L. puncata also has a longer calyx of 8-9 mm, compared to only 6 mm. in L. setosissima. L. puncata had not been collected much prior to 1978. Many plants were collected in 1978's wet spring. L. puncata, a native disturbed site species, has been replaced by many highly competitive introduced disturbed site species, this is seldom seen.

VIII. Hazards: Increased agricultural development and off-road vehicles.

IX. Management Recommendations: This species should be worked out with nearby botanists who may be calling it L. setosissima. After consulting other botanists the range should be mapped and a decision agreed upon. For now, no special management appears necessary. At this time I would list Langloisia puncata as uncommon and vernal in Idaho.

I. Lepidium davisii (Davis's peppergrass)

II. Family: Cruciferae

III. Status: Federal Category II recommended candiate for threatened.

IV. Known Locations:

Idaho: Owyhee County:

a. T. 10 S., R. 6 E., Sec. 11 - 2 sites (Pellant)
b. T. 10 S., R. 6 E., Sec. 22, SW1/4 (Pellant)
c. T. 10 S., R. 7 E., Sec. 33 (Pellant)
d. T. 10 S., R. 5 E., Sec. 23 (Pellant)
e. T. 11 S., R. 6 E., Sec. 22 SE
f. T. 14 S., R. 6 E., Sec. 2
g. T. 13 S., R. 46 E., Sec. 2, 3
h. T. 13 S., R. 6 E., Sec. 18
i. T. 13 S., R. 46 E.
j. Diamond A Reservoir
k. T. 14 S., R. 6 E., Sec. 22 (SE 1/4 SE 1/4)
1. T. 14 S., R. 6 E., Sec. 23 (SE 1/4 SW 1/4)

Twin Falls County:

a. T. 14 S., R. 15 E., Sec. 31
b. T. 14 S., R. 15 E., Sec. 23
c. T. 14 S., R. 15 E., Sec. 32

Elmore County:

a. T. 4 S., R. 3 E., Sec. 1 (State land)
b. T. 3 S., R. 4 E., Sec. 36 (State land)
c. T. 4 S., R. 4 E., Sec. 16 (State land)
d. T. 6 S., R. 5 E.
e. 8 miles north of Bruneau on River.
f. T. 4 S., R. 4 E., Sec. 27
g. T. 4 S., R. 3 E., Secs. 1, 12, 6, 7 near Dorsey Butte.
h. T. 4 S., R. 4 E., Sec. 34

Oregon: Malheur County:

a. S.E. Coyote Lake
b. T. 31 S., R. 39 E., Sec. 5
c. T. 35 S., R. 38 E., Sec. 27 and 28

V. Soil Type: Hard bottom playa (dried up lake beds).

VI. Habitat and Ecology: L. davisii grows on bare ground, hard bottomed playas to the edge of the playa with or without Atriplex and Artemisia cana (silver sage). L. davisii has an extensive tap root and appears to be very long lived.

VII. Remarks: Lepidium davisii only occurs in very hard bottom type playas. Playas are an unusual and unique geologic and soil formation. Out of over a hundred playas in S.W. Idaho only twenty-two playas have Lepidium davisii growing in them. Several of these twenty-two playas have "rough" race tracks set up in them. Each of the L. davisii playa populations seem to be distinct, separate populations. They show independent differences in leaf shape and time of flowering (independent and in fact sometimes reverse to normal elevational trends). All the above factors suggest that L. davisii has a poor dispersal mechanism. L. davisii is apparently resistant to light mechanical disturbance in most seasons of the year except spring. Several sites are being monitored by the Bruneau Resource Area Office. Four paired playas are being monitored after the construction of water storage ponds in one playa of each pair. The study of the paired playas can give definite data to base future management decisions on. The season of grazing is believed to be of prime importance in determining the degree of disturbance. This monitoring has shown that reservoir construction in small playas can damage Lepidium populations even without the additional grazing pressure. It is believed that changes in drainage patterns caused the decline in the Lepidium population rather than grazing.

VIII. Hazards: Hard playas are very vulnerable to any assortment of uses: Race track, watering pond, irrigation storage pond, etc.

IX. Management Recommendations: Protection from all hazards is recommended. The large plays with established race track use could have small areas of the population protected. Another study should be started to see if grazing alone will damage Lepidium populations.

I. Leptodactylon glabrum Patterson and Yoder-Williams Syst. Bot. 1984 (Bruneau River Phlox)

II. Family: Polemoniaceae

III. Status: None in Idaho (uncommon), narrow endemic on Nevada's sensitive plant list.

IV. Known Locations:

Idaho: Owyhee County:

a. Jarbidge River from Cougar Creek Junction downstream.

b. Bruneau River Canyon - from 3.5 miles above Junction of Jarbidge and Bruneau River downstream to the Easts Fork of the Bruneau River (30 miles total).

Nevada: Humboldt County:

a. North Fork of the Humboldt River - 41° 30' latitude, 117° 7' longitude

b. Gorge of the South Fork of the Little Humboldt River, T. 41 N., R. 45 E,. Sec. 7 (approximately 40 individual plants).

c. Eldorado Canyon T. 31 N., R. 33 E., Sec. 26

V. Soil Type: Rhyolitic canyon walls. Rock ledges and cliffs.

VI. Habitat and Ecology: Leptodactylon glabrum grows on decomposed vertical Rhyolitic canyon walls along the Bruneau River from 2800' - 4000'. New growth comes out of last years stalks, and the plant occur in a matted caespitose nature. It is always found on vertical or underhung Rhyolitic canyon walls near rapids on the river. These vertical positions appear to protect the plant from late season frosts. It is pollinated at night by a common noctuid moth (Noctuidae). It is also intolerant of occurring in seepage areas or ephemeral water paths in rock crevices.

VII. Remarks: This collection is similar to L. watsonii and would be a range extension for that taxon. Some confusion on the taxon of this and a similar specimen occurring in the Arco desert. I believe this population to be a distinct species and recommend it be added to the Federal and State Watch List. Its habitat provides protection. This species appears to have the most limited range of all Southern Idaho's canyon dwelling plants.

VIII. Hazards: Damming of the Bruneau River.

IX. Management Recommendations: Protect from hazards.

I. Lomatium hendersonii (Henderson's biscuit root)

II. Family: Umbelliferae (Apiaceae)

III. Status: A misapplied name to a collection of Lomatium found in the Owyhee Mountains. True L. hendersonii is not found in the Boise District.

I. *Lupinus brevicalius* (*color variety*) (short-stemmed Lupine)

II. Family: Leguminosae

III. Status: None.

IV. Known Locations:

Idaho: Owyhee County:

T. 14 S., R. 4 W., Sec. 29

Oregon: Malheur County:

T. 34 S., R. 46 E., Sec. 35

V. Soil Type: Thin, granitic loam.

VI. Habitat and Ecology: *Lupinus brevicalius* (*color variety*) grows in very thin, granitic soil surrounded by sagebrush.

VII. Remarks: *Lupinus brevicalius* (*color variety*) has a yellow-cream colored flower while normal *L. brevicalius* is blue flowered. This plant was identified by Barneby.

VIII. Hazards: Range "improvement" programs and off-road vehicles.

IX. Management Recommendations: None.

I. Lupinus lyalli Dougl. var. washoensis (dwarf Lupine)

II. Family: Leguminosae

III. Status: (Disjunct population) Uncommon.

IV. Known Locations:

Idaho: Owyhee County:

T. 13 S., R. 1 E., Sec. 9

Nevada:

California:

V. Soil Type: Shallow volcanic gravels.

VI. Habitat and Ecology: Perennial with heavy woody caespitose base. Growing in dry, rocky volcanic soil in high elevation, (5600'), sagebrush, (Artemisia arbuscula/Poa), desert.

VII. Remarks: This population in the Owyhee is a new record for the State of Idaho and is quite disjunct from other populations which occur in the Sierra Nevada of California and nearby western Nevada. This species is being revised in the new Intermountain flora and the varieties may be altered.

VIII. Hazards: Grazing, range "improvement" programs and off-road vehicles.

IX. Management Recommendations: More information should be gathered on this species before a recommendation can be made.

I. Lupinus uncialis (inch high Lupine)

II. Family: Leguminosae (Fabaceae)

III. Status: Idaho State sensitive list.

IV. Known Locations:

Idaho: Owyhee County:

a. T. 16 S., R. 4 W., Sec. 13

b. T. 15 S., R. 4 W., Sec. 22 Coyote Hole

c. T. 14 S., R. 5 W., South Fork of the Owyhee River downstream from the confluence of the Little Owyhee River.

Oregon: Malheur County: 5 sites.

a. Crooked Creek

b. Rim rocks near Rome

Humboldt County: several sites.

V. Soil Type: Loose basaltic cinder.

VI. Habitat and Ecology: Lupinus uncialis is a small annual that grows in loose basaltic cinder which is barren of associated plants. All the roots were found to have nodules which were probably nitrogen fixing bacteria. The soil type combined with the need for the bacteria are probably important to this small annual's distribution.

VII. Remarks: The steep canyon provides habitat for many cliff dwelling plants and forms many diverse habitats for such plants. This was a new record for the State of Idaho in 1981 and was the seventh known collection in the country. It appears to be more common in Nevada and Oregon but is uncommon in Idaho.

VIII. Hazards: Off-road vehicles, road building and dams on the Owyhee River.

IX. Management Recommendations: Protect the known location from any hazard.

I. Machaerocarpus californicus (Small-fringed water plantain).

II. Family: Alismataceae

III. Status: Idaho State sensitive list.

IV. Known Locations:

Idaho: Owyhee County:

a. T. 14 S., R. 5 E., Sec. 29 NE 1/4

b. T. 14 S., R. 5 E., Sec. 4 W 1/2

c. T. 14 S., R. 5 E., Sec. 22 SW 1/4, Broken Wagon Reservoir #1

d. T. 14 S., R. 1 E., Sec. 2 & 11, Henry Lake

e. T. 13 S., R. 4 E., Sec. 23 W 1/2

f. T. 16 S., R. 1 E., Sec. 11 & 12 on the Duck Valley Indian Reservation. [Roger Rosentreter #78, #175(b)]

V. Soil Type: Soft bottom playa - sedimentary mud.

VI. Habitat and Ecology: This species occurs in a soft bottom playa. Associated species are Artemisia cana and Plagiobothryes sculi. The plant grows in water and flowers in the water or after the water dries up.

VII. Remarks: This plant is too small at 3-5 cm. to be Machaerocarpus californicus which is supposed to be 2-4 (6) dm. All other morphology fits M. californicus. Duplicates of it have been sent out for identification. The normal size is not uncommon only this small form.

VIII. Hazards: Development of the playa into a reservoir.

IX. Management Recommendations: No recommendation until the taxon is determined. I believe this plant may be a new variety of Machaerocarpus californicus.

I. Malacothrix glabrata (Desert Dandelion)

II. Family: Compositae

III. Status: Uncommon.

IV. Known Locations:

Idaho: Owyhee County:

T. 7 S., R. 3 E., Sec. NE

California:

Arizona:

V. Soil Type: Sandy.

VI. Habitat and Ecology: M. glabrata grows in barren, sandy desert areas. In Idaho it is found with Chrysothamnus nauseosus and Nama aretioides. It appears to be able to store water in it's taproot.

VII. Hazards: Off-road vehicles.

VIII. Management Recommendations: Post the area where M. glabrata is found closed to ORV's because the sandy habitat is so inviting to ORV's and the habitat has several uncommon plants occurring together.

I. *Malacothrix torreyi* (Malacothrix)

II. Family: Compositae

III. Status: Uncommon.

IV. Known Locations:

Idaho: Owyhee County:

Reynolds Creek

Bull Camp T. 16 S., R. 4 W., Sec. 13

Custer County: T. 14 N., R. 18 E., Sec. 3

Canyon County:

a. T. 3 N., R. 5 W., Sec. 2

b. T. 7 S., R. 2 E., Sec. 23 SE

Oregon: Malheur County:

a. T. 24 S., R. 44 E., Sec. 28

b. T. 29 S., R. 41 E., Sec. 5

c. Owyhee Reservoir

Harney County: T. 35 S., R. 35 E., Tuntum Lake area.

Montana: Carbon County: Disjunction population

Wyoming:

Arizona:

Utah:

V. Soil Type: "Sandy"? Gravelly soil on top of lacustrine soil.

VI. Habitat and Ecology: Known to grow in sandy, dry desert areas. Found in Idaho with open stands of *Artemisia spinescens*. Found in lacustrine soil with gravel but no sand.

VII. Remarks: It has a wide range but is infrequent in most of its range.

VIII. Hazards: Off-road vehicles, range "improvement" programs and spring grazing.

IX. Management Recommendations: According to Dr. Packard, this wide ranging species is in no trouble and does not need to be listed.

I. Mentzelia mollis (little ashy Mentzelia)

II. Family: Loasaceae

III. Status: Federal Category II.

IV. Known Locations:

Idaho: Owyhee County:

a. Upper Succor Creek T. 3 S., R. 5 W., Sec. ?

b. Jump Creek - 6 miles N.E. of Oregon - Idaho border.

c. McBride Creek - 1/4 mile west of U.S. Highway 95, T. 1 S., R. 5 W.

Oregon: Malheur County: ----

V. Soil Type: Volcanic ash.

VI. Habitat and Ecology: M. mollis grows only on volcanic ash occurring in the Succor Creek area.

VII. Remarks: M. mollis has a very small range and is highly selective in its habitat requirements. This habitat attracts off-road vehicle use. Range "improvement" programs have disturbed several sites.

IX. Management Recommendations: Change federal status to endangered and protect from all hazards.

I. Mentzelia torreyi (torrey's blazing star)

II. Family: Loasaceae

III. Status: Uncommon.

IV. Known Locations:

Idaho: Elmore County: T. 6 S., R. 11 E., Sec. 22

Owyhee County:

a. T. 7 S., R. 6 E., Sec. 3 & 34, by Indian Bathtub

b. T. 7 S., R. 3 E., Ooylitic limestone site

c. T. 7 S., R. 3 E., Sec. 5

d. Several sites all Salmon Falls Creek

Ada County: T. 2 S., R. 1 E.

Gooding County: T. 5 S., R. 12 E., Sec. 6

Twin Falls County:

a. T. 9 S., R. 15 E.

b. T. 8 S., R. 14 E., Sec. 29

c. T. 6 S., R. 13 E., Sec. 33

d. T. 9 S., R. 14 E., Sec. 10

California: Mono County: near Bridgeport

Nevada: ----

V. Soil Type: Sandy lacustrine, "Mostly dry volcanic soil," (Munz. 1970).

VI. Habitat and Ecology: Mentzelia torreyi is found in Idaho on barren, sandy lacustrine soil on the side of the Snake River Canyon. Associated plants are M. albicaulis, Atriplex, Nama aretioides and Nama densum.

VII. Remarks: Mentzelia torreyi is uncommon for Idaho. This Idaho collection is the northern limit of the Mentzelia torreyi range. Mentzelia torreyi var. acerosa is an orange flowered variety which is less common.

VIII. Hazards: Off-road vehicles and increased agricultural development.

IX. Management Recommendations: None necessary at this time. More locations should be sought to see where else in Idaho this species occurs.

I. Nemacladus rigidus (rigid thread-stem)

II. Family: Campanulaceae

III. Status: Idaho State sensitive list.

IV. Known Locations:

Idaho: Owyhee County:

T. 2 S., R. 3 W., Sec. 32

Nevada: Humboldt County:

a. Martin Creek, T. 42 N., R. 41 E.

b. Near tributary of the Little Owyhee River T. 43 N., R. 46 E.

Oregon: Malheur County:

a. T. 22 S., R. 37 E., Sec. 15 & 22

b. T. 24 S., R. 37 E., Sec. 3

c. T. 28 S., R. 41 E., Sec. 29

California: ----

V. Soil Type: Dry, caked adobe (Davis 1952).

VI. Habitat and Ecology: Nemacladus rigidus grows in dry mud at or near 4000' - 7000'.

VII. Remarks: N. rigidus has only one reported site in Idaho.

VIII. Hazards: Off-road vehicles and range "improvement" programs.

IX. Management Recommendations: Protect from hazards.

I. *Pediocatus simpsonii* var. *robustior* (Hedgehog - cactus)

II. Family: Cactaceae

III. Status: Idaho State sensitive list.

IV. Known Locations:

Idaho: Owyhee County:

a. Reynolds Creek, 1/2 way up.

b. Juniper Mt., S.E. and east of Red Canyon.

c. Red Canyon

d. T. 13 S., R. 5 W., Sec. 6

e. T. 12 S., R. 5 W., Sec. 31 & 32

Nevada: Elko County: T. 47 N., R. 64 E., Sec. 4

Washington - Wyoming, south to New Mexico and Nevada.

V. Soil Type: Dry, rocky soil.

VI. Habitat and Ecology: *P. simpsonii* grows in desert valleys and low elevation mountains.

VII. Remarks: This variety is known in Idaho from three locations but is found throughout the Pacific Northwest. Even with this fairly wide range and being somewhat protected by its habitat, it is subject to heavy collection pressure by cactus lovers.

VIII. Hazards: Commercial collectors.

IX. Management Recommendations: None at this time.

I. Penstemon perpulcher (very beautiful penstemon)

II. Family: Scrophulariaceae

III. Status: None

IV. Known Locations:

Idaho: Owyhee County:

T. 1 S., R. 2 W., Sec. 35

Ada County: T. 1 S., R. 4 E., Sec. 4, 43° Lat., 117° Long.

Canyon County: T. 2 N., R. 3 W., Sec. 31

Cassia County: T. 14 S., R. 20 E., Sec. 31

V. Soil Type: Sandy lacustrine.

VI. Habitat and Ecology: P. perpulcher grows on unstable, sandy lacustrines at low elevations on the middle and lower Snake River plains.

VII. Remarks: This species occurs in two locations and is quite rare.

VIII. Hazards: Increased agricultural development, off-road vehicles, dam projects and related construction.

IX. Management Recommendations: Protect from all hazards.

I. Peraphyllum ramosissium (Squaw Apple)

II. Family: Roseaceae

III. Status: Idaho State Sensitive List

IV. Known Locations:

Idaho: Washington County:

BLM Land

a. T. 11 N., R. 4 W., Sec. 13, SW1/4 of SW1/4

Private Land

b. On higher reaches of Mann Creek north of Weiser on brushy hillside. J.H. Christ #9299 historic site

c. Mann Creek, toward headwaters, north of Weiser, ID on open slopes. J.H. Christ #9287 historic site

d. T. 13 N., R. 5 W., Sec. 14 (SE 1/4), 23 (NE 1/4), 25 (NE 1/4)

California: Modoc County: 1 collection

Nevada: Nye County: 1 collection

Oregon: Baker County: 1 collection

Grant County: 1 collection

Malheur County: 1 collection

Utah: Washington County: 1 collection

V. Soil Type: Clayey silt of basaltic origin

VI. Habitat and Ecology: Sagebrush steppe zone

VII. Remarks: It is a browse species highly selected for by both livestock and wildlife. Livestock over-browsing and trampling of seedlings may be a threat to the remaining isolated populations.

VIII. Hazards: Over-browsing

IX. Management Recommendations: Protect the one site on BLM public land (a) from hazards by fencing. Wildlife proof fencing may be necessary.

I. Peteria thompsonae (spine noded-milkvetch)

II. Family: Leguminosae

III. Status: Idaho State Sensitive list.

IV. Known Locations:

Idaho:

a. T. 7 S., R. 6 E., Sec. 34

b. T. 8 S., R. 6 E., Sec. 21 NW & Sec. 9 SW & Sec. 3

Nevada: several sites in Southern Nevada

Utah: Several sites in the Southern part of the State.

V. Soil Type: Small marble-sized, basaltic cinder (approx. 1 cm diameter).

VI. Habitat and Ecology: Peteria thompsonae grows in barren areas with thin cinder soils at low elevations (3,200 feet).

VII. Remarks: Peteria thompsonae had not been collected in Idaho for many years and apparently was collected from approximately the same area. It is uncommon in southern Nevada and Utah and was on the threatened list for Utah also. This Idaho population is apparently a small disjunct population. The population is in a hot springs area locally called Indian Bathtub. There is a proposed endangered species of snail at this hot spring.

VIII. Hazards: Increased agricultural development, range "improvement" programs, heavy recreational use of the nearby hot springs, off-road vehicles and concentrated riparian grazing use of the adjacent area.

IX. Management Recommendations: Protect from all hazards with immediate closure of the area to off-road vehicles in at least the spring of the year, April through July. Also, a portion of the population occurs on adjacent land which could be purchased and preserved as a natural area.

I. *Phacelia lutea* var. *clava* (yellow Phacelia)

II. Family: Hydrophyllaceae

III. Status: Uncommon.

IV. Known Locations:

Idaho: Owyhee County:

a. T. 1 S., R. 5 W., Sec. 28 & 30

b. T. 3 S., R. 6 W., Sec. 14

c. T. 3 N., R. 6 W., Sec. 26 & 35 NE 1/4

d. T. 1 N., R. 4 W., Sec. 22 & 24

e. T. 2 N., R. 5 W., Sec. 27

Oregon: Malheur County:

a. T. 25 S., R. 46 E., Sec. 5

b. T. 26 S., R. 43 E., Sec. 9

c. T. 32 S., R. 40 E., Sec. 12

d. T. 22 S., R. 47 E., Sec. 32 & 33

V. Soil Type: Loose volcanic ash mixed with some clay.

VI. Habitat and Ecology: This species occurs in this unique soil type often in monoculture because nothing else can seem to grow in the site. The soil expands and contracts causing very unstable conditions.

VII. Remarks: The variety is fairly easy to separate from the other varieties by individual specimens, but the varieties seem to grow intermixed in population sites. This suggests to me that the variety may be an apolymorphic gene rather than a separate heterogene. More study needs to be done. A graduate student is working on the whole Phacelia genus. After his work is completed the issue of this species and variety should be reevaluated.

VIII. Hazards: Off-road vehicles, increased agricultural development and mining.

IX. Management Recommendations: At this time the sites should be protected due to the erosive nature of the soils.

I. Phacelia minutissima (least phacelia)

II. Family: Hydrophyllaceae

III. Status: Uncommon.

IV. Known Locations:

Idaho: Owyhee County:

T. 4 S., R. 3 W., Sec. 7 SE, NW

Camas County:

Oregon: Wallowa Mtns.

Nevada: Elko County:

V. Soil Type: ?

VI. Habitat and Ecology: "At moderate elevations in the Mtns." (Hitchcock 1971).

VII. Remarks: This is a "rarely collected" species known from only two sites in Idaho.

VIII. Hazards: Uncertain.

IX. Management Recommendations: Add to the Federal Endangered List. The species habitat should be defined, mapped and avoided by any projects that would disturb the vegetation.

I. *Pinus flexilis* (Limber Pine)

II. Family: Pinaceae

III. Status: Uncommon in Southwest Idaho (common elsewhere).

IV. Known Locations:

Idaho: Owyhee County:

a. NW of Newsome Ridge

b. T. 5 S., R. 3 W., Sec. 5

Idaho County: T. 4 S., R. 3 E., Sec. 17

Valley County: Foolhorn Creek

Cassia County: T. 13 S., R. 24 E., Sec. 3

Nevada: Elko County: T. 42 N., R. 53 E., Sec. 2

S.E. British Columbia and S.W. Alberta, south through Montana, Wyoming and Colorado. To northern New Mexico, west to California, east to the Dakotas and Nebraska.

V. Soil Type: Granite rock with some thin soil development.

VI. Habitat and Ecology: Sub alpine to alpine, often in semi-arid ranges.

VII. Remarks: Although, this species is common throughout the Pacific Northwest, this particular population and other disjunct populations are important because they provide valuable information on the means of distribution and the past history and climates of the areas in which they occur.

VIII. Hazards: Mining, logging operations and firewood or Christmas tree use.

IX. Management Recommendations: None

I. *Primula cusickiana* (cusick's primrose)

II. Family: Primulaceae

III. Status: Uncommon

IV. Known Locations:

Idaho: Owyhee County:

a. Gulch off Poison Creek - T. 2 N., R. 5 W., Sec. ?

b. T. 9 S., R. 4 W., Sec. 36

Ada, Adams, Blaine, Boise, Camas, Custer, Elmore, Gem, Gooding, Idaho, Valley and Washington Counties.

Gem County: Freezeout Hill, T. 6 N., R. 2 W.

Elmore County:

a. T. 1 S., R. 11 E.

b. T. 2 N., R. 7 E., Sec. 8

c. T. 3 N., R. 6 E., Sec. 31

d. T. 1 N., R. 8 E., Sec. 30

Oregon: Wallowa County:

V. Soil Type: Mostly in grass meadows or sagebrush/grass.

VI. Habitat and Ecology: Northern populations grow in mountain meadows in heavy clay. The southern populations grow in thin, rocky soil on steep slopes of eroded lake terraces and seeps or where it is wet in the spring.

VII. Remarks: There may be three different species represented. The habitat preference agrees with this but the taxa has not been worked out. If they are all one species then the Owyhee *Primula cusickiana* is neither endangered or threatened, but if they are three distinct species then the Owyhee *P. cusickiana* is probably rare. *P. cusickiana* is very beautiful, so is collected a lot by gardners.

VIII. Hazards: Increased agricultural and housing development, heavy grazing in spring and garden plant collectors.

IX. Management Recommendations: None.

I. Ranunculus andersonii (Anderson's Buttercup)

II. Family: Rannunculaceae

III. Status: Uncommon.

IV. Known Locations:

Idaho: Owyhee County:

a. T. 9 S., R. 1 W., Sec 27

b. East Fork of the Owyhee River near Dukes Creek.

c. T. 10 S., R. 3 W.

Bingham County: T. 2 N., R. 32 E., Sec. 17 & 18

Camas County: T. 2 S., R. S 21

T. 1 N., R. 12 E., Sec. 30 NE 1/4

Oregon:

Nevada: Elko County: T. 45 N., R. 55 E., Sec. 16

V. Soil Type: Well drained loam.

VI. Habitat and Ecology: Grows in mid-mountain areas between sagebrush desert to juniper and mountain mahogany zone. Found in the Owyhee Mountains on the edge of loamy soils among rocks which are well-drained.

VII. Remarks: Ranunculus andersonii occurs in several other sites in Idaho which I don't have reported above. R. andersonii flowers very early in the spring so is probably often missed or overlooked.

VIII. Hazards: Grazing and range "improvement" programs.

IX. Management Recommendations: This reported site should be protected and more information should be gathered on R. andersonii's range.

I. Stipa webberi (Webber needlegrass)

II. Family: Poaceae

III. Status: Idaho State Sensitive list

IV. Known Locations:

Idaho:

Blaine County:

a. T. 1 N., R 23 E., Sec. 34, 2, 3, Brass Cap Kipuka

b. T. 1 N., R 21 E., Sec. 13, NW1/4 Private Land

Elmore County:

a. T. 3 S., R 12 E., Sec. 7

Gooding County:

a. T. 3 S., R 12 E., Sec. 4

b. T. 3 S., R 12 E., Sec. 9

Oregon: Southeast portion

Nevada: Known

California: Eastern portion

Colorado: One report from West-central Colorado

V. Soil type: Shallow clay soils over basalt.

VI. Habitat and Ecology: Stipa webberi occurs in both monoculture stands of fairly barren shallow clay soil and mixed within Eriogonum thymoides plant communities. These shallow sites dry up by late spring. The awn on this grass is deciduous, making the identification of this grass difficult. The sites visited in Idaho by the author were near the Mesic-frigid soil temperature break (near 5,000 feet). All these sites were small islands of populations.

VII. Remarks: Stipa webberi has been treated as an Oryzopsis by most botanists, but the most recent Intermountain flora follows B.L. Johnson and treats it as a Stipa that is very closely related to Stipa pinetorum. Both Stipa species have 2n=32 chromosomes, a number not known in any species of Oryzopsis. Stipa pinetorum is found at high elevations while Stipa webberi is the desert counterpart of that species. Only in own characters is Stipa webberi like an Oryzopsis. It is related to Oryzopsis swallenii of Central Idaho which has 34

chromosomes and broader glumes and lemmas. It is through these species that Oryzopsis and Stipa appear to merge and it is likely that a species like Stipa webberi has Oryzopsis parentage in its distant past

VIII. Hazards: Overgrazing or even moderate grazing may eliminate this very palatable grass species.

IX. Management Recommendations: More survey work and monitoring of the known sites needs to be undertaken before any specific management recommendations can be made.

I. Stylocline filaginea (Hooked Stylocline)

II. Family: Compositae

III. Status: Idaho State sensitive list

IV. Known Locations:

Idaho: Elmore County:

a. T. 3 S., R 9 E., Sec. 1, Near Center of Section

b. T. 3 S., R 10 E., Sec. 19

c. T. 3 S., R 11 E., Sec. 3, SW1/4

Oregon: Historical collection in Malheur County:

Nevada: Known

Utah: Known in the SW Portion

California: Known

V. Soil type: Very shallow stony basalt with cindery gravel on the surface.

VI. Habitat and Ecology: Relatively barren areas with cindery gravel surface and shallow basalt bedrock. These areas are very level flats on terraces with poor or no drainage. All the known Idaho sites are at mid elevations near 5,000 feet. This plant is an annual which must germinate shortly after snow melt and flower in May-June. This last year, which was an early and unusually warm and dry season, the plants were found fruited in mid-June. Artemisia longiloba, Artemisia papposa, or Eriogonum thymoides habitats are adjacent to these barren lithic sites containing Hooked stylocline.

VII. Remarks: This annual plant needs more survey work to determine its range. It has been collected in eastern Oregon historically, but, despite extensive survey work, it has not surfaced in recent years.

VIII. Hazards: These shallow, stoney sites are prime sites for off-road vehicles, parking equipment, road buildings, and placement of salt licks. These sites are barren most of the year and most people would select such lithic sites as sacrifice disturbance areas. Also, the invasion of exotic annual weeds competes with Stylocline by filling the niche once occupied by native annuals.

IX. Management Recommendations: Stylocline filaginea needs further survey efforts; being an annual, it may need special wet weather conditions to display its true distribution. The known sites should be protected. Collecting at these sites should be limited. Therefore, these collection sites should not be distributed too widely.

I. Texosporium sancti-jacobi (Tuck.) Nadv. (Texas spored lichen)

syn: Cyphelium sancti-jacobi (Tuck.) Zahlbr.
Acolium sancti-jacobi Edward Tuckerman
Bull. Torr. Bot. Club. 10:21-23 #1883

II. Family: Caliciaceae (order: Calicales) (class: Ascomycetes)

III. Status: A North American endemic lichen species of very limited distribution but no official status.

IV. Known Locations:

Idaho: Ada County: T. 1 N., R. 2 E., Sec. 28 (Kuna - Resource site)

California: San Diego County: ne site - (Threatened with urbanization) Info: from Lief Tibell, Univ. of Uppsla, Finland.

San Benito County: Hwy. 146 at 12.0 mile marker at Pinnacles Monument collected on very old wild rabbit dung, on rocky desert-like plain next to a creek 18 Apr

V. Soil Type: Heavy clay soil.

VI. Habitat and Ecology: Grows on heavy clay microsites within the Artemisia tridentata ssp. wyomingensis/Poa sandbergii habitat type. The site is currently dominated by Chrysothamnus nauseosus a seral species. It occurs with the common moss Bryum argenteum. Texosporium appears to favor open areas with high light intensity and is fairly tolerant of grazing by sheep.

VII. Remarks: This monotypic genus of lichen is very unusual in its type and size of the spore. It has been thought to be one of the few narrow North American Endemic lichens. Most lichens are wide ranging within North America and most species are also world wide in their distribution. This species occurs disjunctly from southern California from an area which is heavily populated. This disjunct Idaho population may be of even greater significance if the California sites disappear.

VIII. Hazards: Off-road vehicles, and range "improvement" projects.

IX. Management Recommendations: Outline known area limits, search for other sites, and protect the known site. Study the species more to better understand the taxons' ecological requirements. Gather information on the extent of the San Diego population. Recommend for threatened status on the Federal list.

I. Trifolium owyheense (Owyhee clover)

II. Family: Leguminosae

III. Status: Federal Category II

IV. Known Locations:

Idaho: Owyhee County:

Succor Creek, T. 3 S., R. 6 W., Sec. 14

Oregon: Malheur County:

a. T. 24 S., R. 44 E., Sec. 25

b. T. 26 S., R. 45 E., Sec. 18

c. T. 26 S., R. 45 E., Sec. 11

d. T. 26 S., R. 45 E., Sec. 31

e. T. 26 S., R. 44 E., Sec. 11

V. Soil Type: Volcanic ash and tuff of a gravelly texture.

VI. Habitat and Ecology: Near sagebrush on flat sites or steep 45° slope. Barren areas composed of volcanic ash and tuff of a gravelly texture.

VII. Remarks: Trifolium owyheense is limited to this unique soil type.

VIII. Hazards: Mining, range "improvement" programs, off-road vehicles and heavy grazing in spring.

IX. Management Recommendations: Trifolium owyheense has a small range and a fairly restricted habitat. It probably needs protection as land use pressures increase. It is fairly abundant in the Leslie Gulch area in Oregon but i not found much in Idaho; occurring just over the border. It should be given full protection; also protect other suitable sites nearby. Recommend adding to the federal list as a threatened plant.

Township/Range Index to Threatened, Endangered, or Sensitive Plant Species for the Boise District of the BLM.

T. 18 N., R. 4 W., Sec. 3, 4, 9, 10, 21	Camassia cusickii
T. 17 N.	
T. 16 N.	
T. 15 N.	
T. 14 N.	
T. 13 N., R. 4 W., Sec. 16, 30, 21	Eriogonum thymoides
T. 12 N., R. 6 W., Sec. 29, 30	Eriogonum thymoides
T. 11 N., R. 5 W., Sec. 35	Astragalus mulfordae
T. 11 N., R. 4 W., Sec. 28, 32	Astragalus mulfordae
T. 10 N., R. 1 W., Sec. 1, 2, 3, 10, 11, 12, 21, 22, 23	Allium aaseae
T. 9 N.	
T. 8 N.	
T. 7 N.	
T. 6 N.	
T. 5 N., R. 3 E., Sec. 22	Allium aaseae
T. 4 N., R. 2 E., Sec. 7	Allium aaseae
T. 3 N., R. 2 E., Sec. 2	Astragalus mulfordae
T. 2 N., R. 5 W., Sec. 22	Chaenactic cusickii
T. 2 N., R. 5 W., Sec. 27	Chaenactic cusickii
	Phacelia minutissima
T. 1 N., R. 2 E., Sec. 28	Texosporium sancti-jacobi
T. 1 S., R. 5 W.	Mentzelia mollis
R. 5 W., Sec. 13	Dimeresia howellii
R. 4 W., Sec. 6	Dimeresia howellii
R. 3 W.	
R. 2 W., Sec. 28, 29, 33, 34	Astragalus camptopus
R. 1 W.	
R. 1 E.	

T. 1 S., R. 2 E.		
R. 3 E.		
R. 4 E.		
R. 5 E.		
R. 6 E.		
R. 7 E.		
R. 8 E.		
R. 9 E.		
R. 10 E.		
R. 11 E.		
R. 12 E.		
T. 2 S., R. 5 W.		
R. 4 W.		
R. 3 W.		
R. 2 W., Sec. 3, 4, 23, 32		Astragalus camptopus
R. 1 W., Sec. 6, NW1/4		Astragalus mulfordae
R. 1 E.		
R. 2 E.		
R. 3 E.		
R. 4 E.		
R. 5 E., Sec. 20		Astragalus camptopus
R. 6 E.		
R. 7 E.		
R. 8 E.		
R. 9 E.		
R. 10 E.		
R. 11 E.		
R. 12 E.		
T. 3 S., R. 6 W., Sec. 14		Trifolium owyheense
T. 3 S., R. 5 W.		Mentzelia mollis
R. 4 W.		
T. 3 S., R. 3 W., Sec. 20, NE1/4 NE1/4		Dimeresia howellii

T. 3 S., R. 2 W., Sec. 10	Astragalus camptopus
R. 1 W.	
R. 1 E.	
R. 2 E.	
R. 3 E.	
R. 4 E.	
R. 5 E.	
R. 6 E.	
R. 7 E.	
R. 8 E.	
R. 9 R.	
R. 10 E.	
R. 11 E.	
R. 12 E., Sec. 4, 7, 9	Stipa webberi
T. 4 S., R. 5 W.	
R. 4 W.	
R. 3 W., Sec. 7	Phacelia minutissima
R. 2 W.	
R. 1 W.	
R. 1 E.	
R. 2 E.,	
R. 3 E., Sec. 1, 6, 7, 12	Lepidium davisii
R. 4 E., Sec. 27, 34	Lepidium davisii
R. 5 E.	
R. 6 E.	
R. 7 E.	
R. 8 E.	
R. 9 E., Sec. 1	Stylocline filaginea
R. 10 E., Sec. 19	Stylocline filaginea
R. 11 E., Sec. 3, SW1/4	Stylocline filaginea
R. 12 E.	
T. 5 S., R. 5 W.	

T. 5 S.,	R. 4 W.	
	R. 3 W.	
	R. 2 W.	
	R. 1 W., Sec. 8	Erigeron ochrocephalum
	R. 1 E.	
	R. 2 E.	
	R. 3 E.	
	R. 4 E.	
	R. 5 E.	
	R. 6 E.	
	R. 7 E.	
	R. 8 E.	
	R. 9 E.	
	R. 10 E.	
	R. 11 E.	
	R. 12 E.	
T. 6 S.,	R. 5 W.	
	R. 4 W.	
	R. 3 W., Sec. 22	Astragalus camptopus
	R. 2 W.	
	R. 1 W.	
	R. 2 E.	
	R. 3 E.	
	R. 4 E.	
	R. 5 E.	Lepidium davisii
	R. 6 E.	
	R. 7 E.	
T. 6 S.,	R. 8 E.	
	R. 9 E.	
	R. 10 E.	
	R. 11 E.	
	R. 12 E.	

T. 7 S., R. 5 W.		
R. 4 W.		
R. 3 W.,	Sec. 4	Astragalus camptopus
R. 2 W.		
R. 1 W.		
R. 1 E.		
R. 2 E.		
R. 3 E.,	Sec. 2, 3, 4	Astragalus camptopus
	Sec. 5	Erigeron ochrocephalum
R. 4 E.		
R. 5 E.,	Sec. 20, 21	Astragalus camptopus
	Sec. 20 (hist. loc.)	Astragalus mulfordae
R. 6 E.,	Sec. 34	Peteria thompsonae
T. 7 S., R. 7 E.		
R. 8 E.		
R. 9 E.		
R. 10 E.		
R. 11 E.		
R. 12 E.		
T. 8 S., R. 5 W.		
R. 4 W.		
R. 3 W.		
R. 2 W.		
R. 1 W.		
R. 1 E.		
R. 2 E.		
R. 3 E.		
R. 4 E.		
R. 5 E.		
R. 6 E.,	Sec. 20	Astragalus camptopus
	Sec. 3, 9, 21	Peteria thompsonae
R. 7 E.		

T. 8 S., R. 8 E.	
R. 9 E.	
R. 10 E.	
R. 11 E.	
R. 12 E.	
T. 9 S., R. 6 W., Sec. 36	Dimeresia howellii
R. 5 W.	
R. 4 W.	
R. 3 W.	
R. 2 W.	
R. 1 W., Sec. 3, 8, 10	Astragalus yoder-williamsii
T. 9 S., R. 1 E.	
R. 2 E.	
R. 3 E.	
R. 4 E.	
R. 5 E.	
R. 6 E.	
R. 7 E.	
R. 8 E.	
R. 9 E.	
R. 10 E.	
R. 11 E.	
R. 12 E.	
T. 10 S., R. 6 W., Sec. 1	Dimeresia howellii
R. 5 W., Sec. 36	Astragalus yoder-williamsii
R. 5 W., Sec. 6	Dimeresia howellii
R. 4 W., Sec. 21, 23, 31	Astragalus yoder-williamsii
R. 3 W., Sec. 2	Astragalus yoder-williamsii
R. 2 W.	
R. 1 W.	
R. 1 E.	
R. 2 E.	

T. 10 S., R. 3 E.	
R. 4 E.	
R. 5 E., Sec. 23	Lepidium davisii
T. 10 S., R. 6 E., Sec. 1	Dimeresia howelli
Sec. 11, 12, 22	Lepidium davisii
R. 7 E., Sec. 33	Lepidium davisii
R. 8 E.	
R. 9 E.	
R. 10 E.	
R. 11 E.	
R. 12 E.	
T. 11 S., R. 5 W.	
R. 4 W.	
R. 3 W.	
R. 2 W.	
R. 1 W.	
R. 1 E.	
R. 2 E.	
R. 3 E.	
R. 4 E.	
R. 5 E.	
R. 6 E., Sec. 22, SE1/4	Lepidium davisii
R. 7 E.	
R. 8 E.	
R. 9 E.	
R. 10 E.	
R. 11 E.	
R. 12 E.	
T. 12 S., R. 5 W.	
R. 4 W.	Erigeron latus
R. 3 W.	
R. 2 W.	

T. 12 S., R. 1 W.		
R. 1 E.		
R. 2 E.		
R. 3 E.		
R. 4 E.		
R. 5 E.		
R. 6 E.		
R. 7 E.		
R. 8 E.		
R. 9 E.		
R. 10 E.		
R. 11 E.		
R. 12 E.		
T. 13 S., R. 5 W.		
R. 4 W.		
R. 3 W., Sec. 27		*Erigeron latus*
R. 2 W.		
R. 1 W.		
R. 1 E.		
R. 2 E.		
R. 3 E.		
R. 4 E.		
R. 5 E.		
R. 6 E., Sec. 18		*Lepidium davisii*
R. 7 E.		
R. 8 E.		
R. 9 E.		
R. 10 E.		
R. 11 E.		
R. 12 E.		
T. 14 S., R. 5 W.		*Lupinus uncialis*
R. 4 W.		

T. 14 S., R. 3 W.		
R. 2 W.		
R. 1 W.		
R. 1 E.		
R. 2 E.		
R. 3 E.		
R. 4 E.		
R. 5 E.		
R. 6 E.,	Sec. 2, 22, 23	Lepidium davisii
R. 7 E.		
R. 8 E.		
R. 9 E.		
R. 10 E.		
R. 11 E.		
R. 12 E.		
T. 15 S., R. 5 W.		
R. 4 W.,	Sec. 22	lupinus uncialis
R. 3 W.		
R. 2 W.		
R. 1 W.		
R. 1 E.		
R. 2 E.		
R. 3 E.		
R. 4 E.		
R. 5 E.		
R. 6 E.		
R. 7 E.		
R. 8 E.		
R. 9 E.		
R. 10 E.		
R. 11 E.		
R. 12 E.		

T. 16 S., R. 5 W.

R. 4 W., Sec. 13 — Lupinus uncialis

R. 3 W.

R. 2 W.

R. 1 W.

R. 1 E.

R. 2 E.

R. 3 E.

R. 4 E.

R. 5 E.

R. 6 E.

R. 7 E.

R. 8 E.

R. 9 E.

R. 10 E.

R. 11 E.

R. 12 E.

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